

CVE-202-L STRUCTURAL ANALYSIS-II

Theory		
Week	Lecture Day	Topic (Including assignment / Test)
1 st	1	Statically Indeterminate Structures: Introduction, Static and Kinematic Indeterminacies
	2	Castigliano's theorems
	3	Castigliano's theorems
	4	Strain energy method
	5	Strain energy method
2 nd	6	Analysis of frames with one redundant members using Castigliano's 2 nd theorem.
	7	Analysis of frames with one redundant members using Castigliano's 2 nd theorem.
	8	Analysis of frames with two redundant members using Castigliano's 2 nd theorem.
	9	Slope deflection Method: Analysis of continuous beams
	10	Analysis of continuous beams
3 rd	11	Analysis of continuous beams
	12	Slope deflection Method: portal frames
	13	Portal Frames
	14	Portal Frames
	15	Portal Frames
4 th	16	Portal frames with inclined members.
	17	Portal frames with inclined members.
	18	Portal frames with inclined members.
	19	Portal frames with inclined members.
	20	Moment Distribution Method: Analysis of continuous beams
5 th	21	Analysis of continuous beams
	22	Analysis of continuous beams
	23	Moment Distribution Method: portal frames
	24	Portal Frames
	25	Portal Frames
6 th	26	Portal Frames
	27	Portal frames with inclined members.
	28	Portal frames with inclined members.
	29	Portal frames with inclined members.
7 th	1st Minor Test	
8 th	31	Column Analogy Method: Elastic centre
	32	Properties of analogous column,
	33	Properties of analogous column,
	34	Column Analogy Method: Applications to beam
	35	Column Analogy Method: Applications to beam
9 th	36	Column Analogy Method: Applications to beam
	37	Column Analogy Method: Applications to frames
	38	Column Analogy Method: Applications to frames
	39	Column Analogy Method: Applications to frames
	40	Column Analogy Method: Applications to frames
10 th	41	Analysis of Two hinged Arches: Parabolic Arches
	42	Analysis of Two hinged Arches: Parabolic Arches
	43	Analysis of Two hinged Arches: Parabolic Arches

	44	Analysis of Two hinged Arches: Circular Arches	
	45	Analysis of Two hinged Arches: Circular Arches	
11 th	46	Analysis of Two hinged Arches: Circular Arches	
	47	Bending Moment Diagram for various loadings,	
	48	Bending Moment Diagram for various loadings,	
	49	Bending Moment Diagram for various loadings,	
	50	Temperature effects	
12 th	51	Rib shortening	
	52	Axial thrust and Radial Shear force diagrams.	
	53	Axial thrust and Radial Shear force diagrams.	
	54	Axial thrust and Radial Shear force diagrams.	
	55	Unsymmetrical Bending Introduction Centroidal principal axes of sections	
13 th	56	Bending stresses in beam subjected to unsymmetrical bending	
	57	Bending stresses in beam subjected to unsymmetrical bending	
	58	Shear centre	
	59	Shear centre for channel, Angles and Z sections.	
	60	Shear centre for channel, Angles and Z sections.	
14th	2nd Minor test		
15 th	61	Cable and suspension Bridges: Introduction, uniformly loaded cables	
	62	Temperature stresses,	
	63	Three hinged stiffening Girder	
	64	Two hinged stiffening Girder	
	65	Two hinged stiffening Girder	

CVE-204-L FLUID MECHANICS-II

Week	Theory	
	Lecture day	Topic (Including Assignment Test)
1 st	1	Laminar Flow: definition, Reynolds number, types, examples, Navier Stoke's equation
	2	Laminar flow between parallel plates, Couette flow
	3	Numerical Problems
	4	Laminar flow through pipes-Hagen Poiseuille law, laminar flow around a sphere-Stokes'law.
	5	Laminar flow through pipes-Hagen Poiseuille law, laminar flow around a sphere-Stokes'law.
2 nd	6	Numerical Problems
	7	Flow through pipes: Types of flows-Reynolds's experiment,
	8	shear stress on turbulent flow, boundary layer in pipes-Establishment of flow,
	9	velocity distribution for turbulent flow in smooth and rough pipes, resistance to flow of fluid in smooth and rough pipes,
	10	Numerical Problems
3 rd	11	Numerical Problems
	12	Stanton and Moody's diagram. Darcy's weisbach equation,
	13	Numerical Problems
	14	Other energy losses in pipes, loss due to sudden expansion, contraction, area variation, length variation, head variation
	15	Numerical Problems
4 th	16	
	17	Hydraulic gradient and total energy lines
	18	Pipes in series and in parallel, equivalent pipe, branched pipe, pipe networks,
	19	Numerical Problems
	20	Numerical Problems
5 th	21	Hardy Cross method, water hammer
	22	Drag and Lift: introduction , definition, difference Types of drag, drag on a sphere, flat plate, cylinder and airfoil,
	23	Numerical Problems
	24	Development of lift on immersed bodies like circular cylinder and airfoil.
	25	Development of lift on immersed bodies like circular cylinder and airfoil.
6 th	26	Open Channel Flow:Type of flow in open channels, geometric parameters of channel section, uniform flow
	27	most economical section – rectangular, hydraulic properties

	28	most economical section – trapezoidal, hydraulic properties
	29	Numerical Problems
	30	Numerical Problems
7 th	31	MINOR TEST I
	32	
	33	
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8 th	36	Specific energy and critical depth, momentum in open channel
	37	Specific force, critical flow in rectangular channel – energy equation
	38	Numerical Problems
	39	Applications of specific energy and discharge diagrams to channel transition, metering flumes,
	40	Applications of specific energy and discharge diagrams to channel transition, metering flumes,
9 th	41	Hydraulic jump in rectangular channel, surges in open channels, positive and negative surges,
	42	Numerical Problems
	43	Gradually varied flow equation and its integration,
	44	Surface profiles, Numerical Problems
	45	Numerical Problems
10 th	46	Compressible flow: Basic relationship of thermodynamics continuity, momentum and energy equations,
	47	Propagation of elastic waves due to compression of fluid, Mach number and its significance, subsonic and supersonic flows
	48	Numerical Problems
	49	Propagation of elastic wave due to disturbance in fluid Mach cone,
	50	Propagation of elastic wave due to disturbance in fluid Mach cone,
11 th	51	Numerical Problems
	52	Stagnation pressure, Numerical Problems
	53	Numerical Problems
	54	Pumps and Turbines: difference, types, working principle
	55	Pumps and Turbines: difference, types, working principle
12 th	56	Synchronous speed , specific speed, Head , power calculation
	57	Reciprocating pumps, their types, work done by single and double acting pumps.
	58	Numerical Problems

	59	Numerical Problems
	60	Numerical Problems
13 th	61	Centrifugal pumps, components and parts and working, types, heads of a pump-statics and manometric heads
	62	Force executed by fluid jet on stationary and moving flat vanes,
	63	Numerical Problems
	64	Turbines-classifications of turbines based on head and specific speed,
	65	Turbines-classifications of turbines based on head and specific speed,
14 th	66	MINOR TEST II
	67	
	68	
	69	
	70	
15 th	71	Component and working of Pelton wheel and Francis turbines,
	72	Cavitation and setting of turbines.
	73	Numerical Problems
	74	Numerical Problems
	75	Numerical Problems

CVE-204-P FLUID MECHANICS-II Lab (P)

Week	Practical	
	Lecture day	Topic (Including Assignment Test)
1 st	1	Experiment 1 –To determine the coefficient of drag by Stoke's law for spherical bodies (Group 1)
	2	Experiment 1 –To determine the coefficient of drag by Stoke's law for spherical bodies (Group 2)
2 nd	3	Experiment 2 –To study the phenomenon of cavitation in pipe flow (Group 1)
	4	Experiment 2 - To study the phenomenon of cavitation in pipe flow (Group 2)
3 rd	5	Experiment 3 - To determine the critical Reynold's number for flow through commercial pipes (Group 1)
	6	Experiment 3 - To determine the critical Reynold's number for flow through commercial pipes (Group 2)
4 th	7	Experiment 4 - To determine the coefficient of discharge for flow over a broad crested weir (Group 1)
	8	Experiment 4 - To determine the coefficient of discharge for flow over a broad crested weir (Group 2)
5 th	9	Experiment 5 - To study the characteristics of a hydraulic jump on a horizontal floor and sloping glacis including friction blocks (Group 1)
	10	Experiment 5 - To study the characteristics of a hydraulic jump on a horizontal floor and sloping glacis including friction blocks (Group 2)
6 th	11	Experiment 5 - To study the characteristics of a hydraulic jump on a horizontal floor and sloping glacis including friction blocks (Group 1)
	12	Experiment 5 - To study the characteristics of a hydraulic jump on a horizontal floor and sloping glacis including friction blocks (Group 2)
7 th	13	MINOR TEST I
	14	
8 th	15	VIVA – VOCE Group - 1
	16	VIVA – VOCE Group - 2
9 th	17	Experiment 6– To study the scouring phenomenon around a bridge pier model (Group 1)
	18	Experiment 6 - To study the scouring phenomenon around a bridge pier model (Group 2)
10 th	19	Experiment 7 -To study the scouring phenomenon for flow past a spur(Group 1)
	20	Experiment 7 - To study the scouring phenomenon for flow past a spur (Group 2)
11 th	21	Experiment 8 -To determine the characteristics of a centrifugal pump (Group 1)
	22	Experiment 8 - To determine the characteristics of a centrifugal pump (Group 2)
12 th	23	Experiment 9–To study the momentum characteristics of a given jet. (Group 1)
	24	Experiment 9 - To study the momentum characteristics of a given jet. (Group 2)
13 th	25	Experiment 10 - To determine head loss due to various pipe fittings (G1)
	26	Experiment 10 - To determine head loss due to various pipe fittings (G2)

14 th	27	MINOR TEST II
	28	
15 th	29	VIVA – VOCE Group - 1
	30	VIVA – VOCE Group - 2

CVE- 206 -L SOIL MECHANICS

Week	Theory	
	Lecture day	Topic (Including Assignment Test)
1 st	1	<ul style="list-style-type: none"> Soil Formation and Composition: Introduction, soil and rock, Soil Mechanics and Foundation Engineering
	2	<ul style="list-style-type: none"> Origin of soils, weathering, soil formation, Major soil deposits of India
	3	<ul style="list-style-type: none"> Particle size, particle shape, inter particle forces, soil structure, principal clay minerals.
	4	<ul style="list-style-type: none"> Basic Soil Properties: Introduction, three phase system, weight-volume relationships,
2 nd	5	<ul style="list-style-type: none"> Soil grain properties, soil aggregate properties, grain size analysis,
	6	<ul style="list-style-type: none"> Sieve analysis, sedimentation analysis, grain size distribution curves
	7	<ul style="list-style-type: none"> Consistency of soils, consistency limits and their determination,
	8	<ul style="list-style-type: none"> Activity of clays, relative density of sands
3 rd	9	<ul style="list-style-type: none"> Classification of soils, Purpose of classification, classification on the basis of grain size
	10	<ul style="list-style-type: none"> Classification on the basis of plasticity, plasticity chart, Indian Standard classification System.
	11	<ul style="list-style-type: none"> Permeability of Soils, Introduction, Darcy's law and its validity
	12	<ul style="list-style-type: none"> Discharge velocity and seepage velocity, factors affecting permeability,
4 th	13	<ul style="list-style-type: none"> Laboratory determination of coefficient of permeability,
	14	<ul style="list-style-type: none"> Determination of field permeability, permeability of stratified deposits
	15	<ul style="list-style-type: none"> Effective Stress Concept, Principle of effective stress, effective stress under hydrostatic conditions
	16	<ul style="list-style-type: none"> Capillary rise in soils, effective stress in the zone of capillary rise
5 th	17	<ul style="list-style-type: none"> Effective stress under steady state hydro-dynamic conditions, seepage force,
	18	<ul style="list-style-type: none"> Quick condition, critical hydraulic gradient
	19	<ul style="list-style-type: none"> Two dimensional flow, Laplace's equation,
	20	<ul style="list-style-type: none"> Properties and utilities of flow net, graphical method of construction of flow nets,
6 th	21	<ul style="list-style-type: none"> Piping, protective filter
	22	<ul style="list-style-type: none"> Compaction: Introduction, role of moisture and compactive effect in compaction
	23	<ul style="list-style-type: none"> Laboratory determination of optimum moisture content, moisture density relationship,
	24	<ul style="list-style-type: none"> Compaction in field, compaction of cohesionless soils,
7 th	25	MINOR TEST I
	26	

	27	
	28	
8 th	29	<ul style="list-style-type: none"> Moderately cohesive soils and clays, field control of compaction
	30	<ul style="list-style-type: none"> Vertical Stress below Applied Loads: Introduction, Boussinesq's equation, vertical stress distribution diagrams
	31	<ul style="list-style-type: none"> Numerical Problems
	32	<ul style="list-style-type: none"> Vertical stress beneath loaded areas, Newmark's influence chart
9 th	33	<ul style="list-style-type: none"> Approximate stress distribution methods for loaded areas, Westergaard's analysis, contact pressure
	34	<ul style="list-style-type: none"> Compressibility and Consolidation: Introduction, components of total settlement, consolidation process
	35	<ul style="list-style-type: none"> One-dimensional consolidation test, typical void ratio-pressure relationships for sands and clays,
	36	<ul style="list-style-type: none"> normally consolidated and over consolidated clays
10 th	37	<ul style="list-style-type: none"> Casagrande's graphical method of estimating pre-consolidation pressure,
	38	<ul style="list-style-type: none"> Terzaghi's theory of one-dimensional primary consolidation,
	39	<ul style="list-style-type: none"> Numerical Problems
	40	<ul style="list-style-type: none"> Determination of coefficients of consolidation, consolidation settlement,
11 th	41	<ul style="list-style-type: none"> Construction period settlement, secondary consolidation.
	42	<ul style="list-style-type: none"> Shear Strength: Introduction, Mohr stress circle, Mohr-Coulomb failure-criterion,
	43	<ul style="list-style-type: none"> Relationship between principal stresses at failure,
	44	<ul style="list-style-type: none"> shear tests, direct shear test
12 th	45	<ul style="list-style-type: none"> Unconfined compression test,
	46	<ul style="list-style-type: none"> Triaxial compression tests
	47	<ul style="list-style-type: none"> Drainage conditions and strength parameters
	48	<ul style="list-style-type: none"> Vane shear test, shear strength characteristics of sands
13 th	49	<ul style="list-style-type: none"> Normally consolidated clays, over-consolidated clays and partially saturated soils,
	50	<ul style="list-style-type: none"> Sensitivity and thixotropy
	51	<ul style="list-style-type: none"> Earth Pressure: Introduction, earth pressure at rest,
	52	<ul style="list-style-type: none"> Rankine's active & passive states of plastic equilibrium,
14 th	53	MINOR TEST II
	54	
	55	
	56	
15 th	57	<ul style="list-style-type: none"> Rankine's earth pressure theory

	58	• Coulomb's earth pressure theory,
	59	• Culmann's graphical construction
	60	• Rebhann's construction

CVE-206-P SOIL MECHANICS LAB

Week	Practical	
	Lecture day	Topic (Including Assignment Test)
1 st	1	Experiment 1 - Visual Soil Classification and water content determination (Group 1)
	2	Experiment 1 - Visual Soil Classification and water content determination (Group 2)
2 nd	3	Experiment 2 - Determination of specific gravity of soil solids (Group 1)
	4	Experiment 2 - Determination of specific gravity of soil solids (Group 2)
3 rd	5	Experiment 3 - Grain size analysis-sieve analysis (Group 1)
	6	Experiment 3 - Grain size analysis-sieve analysis (Group 2)
4 th	7	Experiment 4 - Liquid limit and plastic limit determination. (Group 1)
	8	Experiment 4 - Liquid limit and plastic limit determination (Group 2)
5 th	9	Experiment 5 - Field density by:Sand replacement method(Group 1)
	10	Experiment 5 - Field density by:Sand replacement method(Group 2)
6 th	11	Experiment 5 - Field density by:Core cutter method (Group 1)
	12	Experiment 5 - Field density by:Core cutter method (Group 2)
7 th	13	MINOR TEST I
	14	
8 th	15	VIVA – VOCE Group - 1
	16	VIVA – VOCE Group - 2
9 th	17	Experiment 6 -Proctor's compaction test (Group 1)
	18	Experiment 6 - Proctor's compaction test (Group 2)
10 th	19	Experiment 7 - Coefficient of permeability of soils (Group 1)
	20	Experiment 7 - Coefficient of permeability of soils(Group 2)
11 th	21	Experiment 8 - Unconfined compressive strength test (Group 1)
	22	Experiment 8 - Unconfined compressive strength test(Group 2)
12 th	23	Experiment 9 - Direct shear test on granular soil sample (Group 1)
	24	Experiment 9 - Direct shear test on granular soil sample (Group 2)
13 th	25	Experiment 10 - Unconsolidated undrained (UU) triaxial shear test of fine grained soil sample (Group 1)
	26	Experiment 10 - Unconsolidated undrained (UU) triaxial shear test of fine grained soil sample (Group 2)
14 th	27	MINOR TEST II
	28	

15 th	29	VIVA – VOCE Group - 1
	30	VIVA – VOCE Group - 2

SURVEYING-II (CVE-208-L)

	Lecture Day	Topic (Including assignment / Test)	
Unit-I			
1 st	1	Trigonometrical Levelling	
	2	Height and distances-base of the object accessible	
	3	Base of object inaccessible	
	4	Geodetical observation	
2 nd	5	Refraction and curvature	
	6	Axis signal correction, difference in elevation between two points	
	7	Triangulation	
3 rd	8	Triangulation systems, classification	
	9	Strength of figure	
	10	Selection of triangulation stations	
	11	Grade of triangulation, field work of triangulation	
	12	Triangulation computations, introduction to E.D.M. instruments.	
Unit-II			
4 th	13	Survey Adjustment and Treatment of Observations	
	14	Types of errors	
	15	Definition of weight of an observation	
	16	Most probable values	
5 th	17	Law of accidental errors	
	18	Determination of probable error (different cases with examples)	
	19	Determination of probable error (different cases with examples)	
	20	Principle of least squares	
6 th	21	Principle of least squares	
	22	Law of weights	
	23	Adjustment of triangulation figures by method of least squares	
	24	Adjustment of triangulation figures by method of least squares	
7 th	1st Minor Test		
Unit-III			
8 th	25	Astronomy	
	26	Definitions of astronomical terms	
	27	Star at elongation	
	28	Star at prime vertical star at horizon	
9 th	29	Star at culmination	
	30	Celestial coordinate systems	
	31	Napier's rule of circular parts	
	32	Various time systems: sidereal	
10 th	33	Various time systems: sidereal	
	34	Apparent	
	35	Solar and mean solar time	
	36	Equation of time-its cause	
Unit-IV			
11 th	37	Elements of Photo-grammetry	
	38	Introduction	
	39	Types of photographs	
	40	Types of aerial photographs	
12 th	41	Aerial camera and height displacements in vertical photographs	
	42	Aerial camera and height displacements in vertical photographs	

	43	Stereoscopic vision and stereoscopies	
	44	Stereoscopic vision and stereoscopies	
13 th	45	Height determination from parallax measurement	
	46	Height determination from parallax measurement	
	47	Height determination from parallax measurement	
	48	Flight planning	
14th	2nd Minor test		
15 th	49	Introduction of remote sensing and its systems:	
	50	Concept of G.I.S and G.P.S	
	51	Basic Components	
	52	Data input, storage & output	

SURVEYING-II (P)/ CVE –208-P

Week	Practical
1 st	Theodilite: Study of theodolite, measurement of horizontal angle.
2 nd	Measurement of vertical angle.
3 rd	Permanent adjustment.
4 th	Tachometry: Tachometric constants,
5 th	Calculation of horizontal distance and elevation with the help of Tachometer.
6 th	Curves: Setting of simple circular curves by off- set method: off -set from chord produced,
7 th	Minor Test-1
8 th	Setting of simple circular curves by off- set method: off -set from long chord.
9 th	Setting of simple circular curves by deflection angle Method.
10 th	Setting of simple circular curves by deflection angle Method.
11 th	Triangulation: An exercise of triangulation
12 th	An exercise of triangulation
13 th	Base line measurement.
14 th	Minor Test-II
15 th	Base line measurement.

ENVIROMENTAL STUDIES/EVS-201-L

Week	Theory	
	Lecture Day	Topic (Including assignment / Test)
Unit-I		
1 st	1	Introduction, Definition, Need for public awareness
	2	Concept of ecosystems
	3	Structure and function of an ecosystem
2 nd	4	Producers, consumers and decomposers
	5	Ecological succession, Energy flow in the ecosystem
	6	Food chains, Food webs and ecological pyramids,
3 rd	7	Scope and importance, types, characteristics features, structure and function of the following ecosystems
	8	Forest ecosystem, Grassland ecosystem , Desert ecosystem, Aquatic ecosystem (Ponds, Stream, lakes, rivers, oceans, estuaries)
	9	Study of simple ecosystems – ponds, river, hill slopes etc. , Visit to a local area to document environmental assets- river/forest/grassland/hill/mountain
Unit-II		
4 th	10	Renewable and non-renewable resources
	11	Forest resources: Use and over-exploitation, deforestation, case studies, Natural resources and associated problems,
	12	Timber extraction, mining, dams and their effects on forests and tribal people, Water resources: Use and over utilization of surface and ground water, floods, droughts conflicts over water,
5 th	13	Dams benefits and problems, Mineral resources: Use and exploitation, environmental effects of extracting and mineral resources
	14	Food resources: World food problem, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, Water logging, salinity,
	15	Energy resources: Growing energy needs, renewable and non-renewable energy sources, Use of alternate energy sources, case studies, Land resources: Land as a resource, land degradation, main induced landslides
6 th	16	Soil erosion and desertification, Role of an individual in conservation of natural resources, Equitable use of resources for suitable lifestyle Introduction-Definition: genetic, species and ecosystem diversity
	17	Bio geographical classification of India, Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and option values, Biodiversity at global, national and local level, India as a mega-diversity nation, Hot-spot of biodiversity,
	18	Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, Endangered and endemic species of India, Study of common plants, insects, birds.
7 th	1st Minor Test	
Unit-III		
8 th	19	Definition of Environment Pollution, Causes
	20	Effects and control measures of: Air Pollution, Water Pollution, Soil pollution
	21	Effects and control measures of: Air Pollution, Water Pollution, Soil pollution
9 th	22	Marine pollution, Noise pollution
	23	Thermal pollution, Nuclear hazards
	24	Solid waste Management:, effects and control measures of urban and industrial wastes
10 th	25	Role of and individual in prevention of pollution, Pollution case studies
	26	Disaster management: floods, earthquake, cyclone and landslides
	27	Visit to a local polluted site- Urban/Rural/Industrial/Agricultural

Unit-IV

11 th	28	From unsustainable of Sustainable development
	29	Urban problems related to energy, Water conservation, rain water harvesting
	30	Watershed management, Resettlement and rehabilitation of people; its problem and concern
12 th	31	Environment ethics: Issues and possible solutions
	32	Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust
	33	Case studies, Wasteland reclamation, Consumerism and waste products, Environment Protection Act
13 th	34	Air (Prevention and Control of Pollution) Act, Water (Prevention and Control of Pollution)
	35	Wildlife Protection Act, Forest Conservation Act
	36	Issues involved in enforcement of environmental legislation, Public awareness
14th	2nd Minor test	
15 th	37	Population growth, variation among nation, Population explosion- Family Welfare Programme
	38	Environment and human health , Human Rights, Value Education, HIV/AIDS, Women and Child Welfare
	39	Role of Information Technology in Environment and human health, Case Studies

EVS-201-L ENVIRONMENTAL STUDIES

Week	Theory	
	Lecture day	Topic (Including Assignment Test)
1 st	1	Environmental Studies - Definition, scope and importance, need for public awareness,
	2	Concept of ecosystems, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem,
	3	Ecological succession ,Food chains, Food webs and ecological pyramids, Introduction, types, characteristics features,
2 nd	4	structure and function of the following ecosystems: Forest ecosystem, Grassland ecosystem
	5	Desert ecosystem, Aquatic ecosystem (Ponds, Stream, lakes, rivers, oceans, estuaries),
	6	Study of simple ecosystems – ponds, river, hill slopes etc.
3 rd	7	Activity - Visit to a local area to document environmental assets- river/forest/grassland/hill/mountain
	8	Renewable and non-renewable resources, Natural resources and associated problems,
	9	Forest resources: Use and over-exploitation, deforestation, case studies,
4 th	10	Timber extraction, mining, dams and their effects on forests and tribal people,
	11	Water resources: Use and over utilization of surface and ground water, floods, droughts conflicts over water, dams benefits and problems,
	12	Mineral resources: Use and exploitation, environmental effects of extracting and mineral resources,
5 th	13	Food resources: World food problem, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity,
	14	Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies,
	15	Land resources: Land as a resource, land degradation, main induced landslides, soil erosion and desertification,
6 th	16	Role of an individual in conservation of natural resources, Equitable use of resources for suitable lifestyle.
	17	Introduction-Definition: genetic, species and ecosystem diversity
	18	Bio geographical classification of India, Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and option values,
7 th	19	MINOR TEST 1
	20	
	21	
8 th	22	Biodiversity at global, national and local level, India as a mega-diversity nation,
	23	Hot-spot of biodiversity, Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, Endangered and endemic species of India, Study of common plants, insects, birds.
	24	Definition of Environment Pollution, types, sources, related problems
9 th	25	Causes, effects and control measures of: Air Pollution, Water Pollution,
	26	Causes, effects and control measures of: Soil pollution, Marine pollution, Noise pollution,

	27	Causes, effects and control measures of: Thermal pollution, Nuclear hazards, Solid waste Management: effects and control measures of urban and industrial wastes,.
10 th	28	Role of and individual in prevention of pollution, Pollution case studies,
	29	Disaster management: floods, earthquake, cyclone and landslides,
	30	Activity - Visit to a local polluted site- Urban/Rural/Industrial/Agricultural
11 th	31	Sustainable development – Definition, Importance and Need, From unsustainable of Sustainable development – Case Studies
	32	Urban problems related to Energy, Water conservation
	33	Urban problems related to rain water harvesting, watershed management,
12 th	34	Resettlement and rehabilitation of people; its problem and concern,
	35	Environment ethics: Issues and possible solutions,
	36	Case studies – Smog, Ozone layer depletion, Nuclear accidents
13 th	37	Wasteland reclamation, Consumerism and waste products
	38	Environment Protection Act, Air (Prevention and Control of Pollution) Act,
	39	Water (Prevention and Control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act.
14 th	40	MINOR TEST II
	41	
	42	
15 th	43	Issues involved in enforcement of environmental legislation, Public awareness, Population growth, variation among nation,
	44	Population explosion- Family Welfare Programme, Environment and human health , Human Rights,
	45	Value Education, HIV/AIDS, Women and Child Welfare, Role of Information Technology in Environment and human health, Case Studies

PSY-201-L PERSONALITY DEVELOPMENT

Week	Theory	
	Lecture day	Topic (Including Assignment Test)
1 st	1	Understanding the concept of self,
	2	Self-Esteem,
	3	Characteristics of individuals with high self-esteem.
2 nd	4	Characteristics of individuals with high self-esteem.
	5	Characteristics of individuals with low self-esteem.
	6	Characteristics of individuals with low self-esteem.
3 rd	7	Self- Confidence,
	8	Strategies of building self-confidence.
	9	Case Study.
4 th	10	Understanding Personality,
	11	Factors affecting Personality: Biological,
	12	Factors affecting Personality: Biological,
5 th	13	Factors affecting Personality: Psychological
	14	Factors affecting Personality: Social,
	15	Theories of Personality: Freud, Allport.
6 th	16	Theories of Personality: Freud, Allport.
	17	Personality Assessment- Neo-Big Five Personality Test; T.A.T
	18	Personality Assessment- Neo-Big Five Personality Test; T.A.T
7 th	19	MINOR TEST 1
	20	
	21	
8 th	22	Stress: Causes of Stress and its impact,
	23	Stress: Causes of Stress and its impact,
	24	Stress: Causes of Stress and its impact,
9 th	25	Strategies of stress management
	26	Strategies of stress management
	27	Strategies of stress management
10 th	28	Case study.
	29	Case study.

	30	Case study.
11 th	31	Emotional Intelligence: Concept,
	32	Emotional quotient why Emotional Intelligence matters,
	33	Emotional quotient why Emotional Intelligence matters,
12 th	34	Emotional quotient why Emotional Intelligence matters,
	35	Measuring EQ,
	36	Measuring EQ,
13 th	37	Developing healthy emotions.
	38	Developing healthy emotions
	39	Management of anger and interpersonal relations. Case study.
14 th	40	MINOR TEST II
	41	
	42	
15 th	43	Management of anger and interpersonal relations.
	44	Case study
	45	Case study

MATHEMATICS

Week	Theory	
	Lecture Day	Topic (Including Assignment/Test)
1 st	1	Euler's Formulae
	2	Dirichlet's Condition for Fourier expansions
	3	Problems and Solutions
	4	Fourier expansion of functions having point of discontinuity
2 nd	5	Change of interval
	6	Odd and even functions
	7	Problems and Solutions
	8	Fourier expansion of square wave
3 rd	9	Rectangular wave, saw-toothed wave
	10	Half and full rectified wave
	11	Half range sine and cosine series
	12	Problems and Solutions
4 th	13	Fourier integrals Theorem
	14	Fourier transforms
	15	Fourier sine & cosine transforms
	16	Properties of Fourier transforms,
5 th	17	Convolution theorem
	18	Shifting theorem (both on time and frequency axes)
	19	Fourier transforms of derivatives
	20	Fourier transforms of integrals
6 th	21	Fourier transform of Dirac delta function
	22	Problems and Solutions
	23	Functions of complex variable, limit & continuity of a function
	24	Exponential, Trigonometric, Hyperbolic & Logarithmic functions
7 th	-----1 st Minor Test-----	
8 th	25	Differentiability & Analyticity
	26	C-R equations: necessary & sufficient condition for function to be analytic
	27	Polar form of C-R equations, Harmonic functions
	28	Integration of complex functions
9 th	29	Problems and Solutions
	30	Cauchy Theorem, Cauchy- Integral formula.
	31	Power series, radius and circle of convergence
	32	Taylor's Maclaurin's and Laurent's series
10 th	33	Zeroes and singularities of complex functions
	34	Residues. Evaluation of real integrals using residues (around unit circle)
	35	Residues. Evaluation of real integrals using residues (around semi circle)
	36	Problems and Solutions
11 th	37	Introduction of Probability Distributions and Hypothesis Testing
	38	Expected value of a random variable
	39	Baye's Theorem
	40	Discrete and continuous probability distribution.
12 th	41	Testing of a hypothesis, tests of significance for large samples
	42	Properties and application of Binomial distribution.
	43	Student's t-distribution (applications only)
	44	Chi-square test of goodness of fit
13 th	45	Problems and Solutions
	46	Linear Programming problems formulation
	47	Solution of LPP using Graphical Method
	48	Canonical and Standard form of LPP
14 th	-----2 nd Minor Test-----	
15 th	49	Linear Programming problems formulation
	50	Solution of LPP using Simplex Method
	51	Solution of LPP for degeneracy problem
	52	Solution of LPP using Dual Simplex Method

PERSONALITY DEVELOPMENT (PSY-201-L)

Week	Theory	
	Lecture Day	Topic (Including Assignment/Test)
1 st	1	Introduction of Self
	2	Meaning and Definitions of Self
	3	Meaning and Definitions of Self-Esteem
2 nd	4	Importance of Self-Esteem
	5	Characteristics of individuals with high self-esteem
	6	Characteristics of individuals with low self-esteem
3 rd	7	Meaning and Definitions of Self- Confidence
	8	Strategies of building self-confidence
	9	Case Study
4 th	10	Problems and Solutions
	11	Meaning and Definitions of Personality
	12	Problems and Solutions
5 th	13	Factors affecting Personality
	14	Biological Factors
	15	Psychological Factors
6 th	16	Social Factors
	17	Theories of Personality
	18	Type And Trait Theories (Case Study)
7 th	----- 1st Minor Test -----	
8 th	19	Freud's Theory of Personality
	20	Allport's Theory of Personality
	21	Assessment- Neo-Big Five Personality Test
9 th	22	Thematic Apperception Test (T.A.T)
	23	Word Association Test (Case Study)
	24	Play Technique (Case Study)
10 th	25	Dramatic Production Test (Case Study)
	26	Verbal Projection Test (Case Study)
	27	Problems and Solutions
11 th	28	Meaning and Definitions of Stress
	29	Causes of Stress and its impact,
	30	Strategies of stress management
12 th	31	Case study
	32	Problems and Solutions
	33	Meaning and Definitions of Emotional Intelligence
13 th	34	Concept, emotional quotient why Emotional Intelligence matters
	35	Measuring EQ
	36	Developing healthy emotions
14 th	----- 2nd Minor Test -----	
15 th	37	Management of anger and interpersonal relations.
	38	Case study.
	39	Problems and Solutions

