

**CURRICULUM FOR
DIPLOMA OF ASSOCIATE
ENGINEER
IN
LAND & MINE SURVEYING
TECHNOLOGY
(3 - Years Course)**

LAND & MINE SURVEYING TECHNOLOGY
SCHEME OF STUDIES

CODE NO.	SUBJECT	FIRST YEAR			PAGE
		T	P	C	
Math 113	Math-I	3	0	3	1
Phy 133	Applied Physics*	2	3	3	3
CH 143	Applied Chemistry*	2	3	3	7
L&MS 123	Surveying-I	2	3	3	10
MIN 132	Introduction to Mining	2	0	2	12
MT 133	Elementary Drawing	1	6	3	14
Comp 132	Computer – I	1	3	2	17
Eng 112	English	2	0	2	20
GEN 111	Islamiat & Pak Studies	1	0	1	21
L&MS 142	Practical Training	0	6	2	27
	TOTAL	16	24	24	

CODE NO.	SUBJECT	SECOND YEAR			PAGE
		T	P	C	
Math 212	Math-II	2	0	2	29
MIN 213	Mine Ventilation	2	3	3	31
L&MS 214	Survey-II	2	6	4	34
CT 262	Quantity Survey – I	1	3	2	37
CT 243	Civil Drafting	1	6	3	40
Comp 262	Computer-II	1	3	2	42
GEN 211	Islamiat & Pak Studies	1	0	1	48
L&MS 223	Survey Camp	0	6	2	55
	TOTAL	10	27	19	

CODE NO.	SUBJECT	THIRD YEAR			PAGE
		T	P	C	
MIN 313	Coal Mining.	2	3	3	56
L&MS 323	Surveying-III	2	6	4	59
L&MS 333	Surveying-IV	2	6	4	62
CT 322	Quantity Survey – II	0	6	2	64
Comp 343	Computer-III	2	3	3	65
MIN 312	Mine Management, Economics and Legislations	2	0	2	68
MIN 372	Rescue & Safety	1	3	2	69
MIN 302	Explosives and Blasting	2	0	2	72
GEN 311	Islamiat & Pak Studies	1	0	1	75
	TOTAL	14	27	23	

*Phy 133 and Ch 143 are common for Land & Mine Surveying Technology and Mining Technology.

**SYLLABI FOR THREE YEARS DIPLOMA COURSE IN
LAND & MINE SURVEYING**

Math – 113**Math-I**

Total contact hours	96	T	P	C
Theory		3	0	3

Pre-requisite: Must have completed a course of Elective Mathematics at Matric level.

- AIMS** After completing the course the students will be able to
1. Solve problems of Algebra, Trigonometry, vectors. Menstruation, Matrices and Determinants.
 2. Develop skill, mathematical attitudes and logical perception in the use of mathematical instruments as required in the technological fields.
 3. Acquire mathematical clarity and insight in the solution of technical problems.

COURSE CONTENTS**1 QUADRATIC EQUATIONS 6 Hrs**

- 1.1 Standard Form
- 1.2 Solution
- 1.3 Nature of roots
- 1.4 Sum & Product of roots
- 1.5 Formation
- 1.6 Problems

2 ARITHMETIC PROGRESSION AND SERIES 3Hrs

- 2.1 Sequence
- 2.2 Series
- 2.3 nth term
- 2.4 Sum of the first n terms
- 2.5 Means
- 2.6 Problems

3 GEOMETRIC PROGRESSION AND SERIES 3Hrs

- 3.1 nth term
- 3.2 sum of the first n terms
- 3.3 Means
- 3.4 Infinite Geometric progression
- 3.5 Problems

4 BINOMIAL THEOREM 6 Hrs

- 4.1 Factorials
- 4.2 Binomial Expression
- 4.3 Binomial Co-efficient
- 4.4 Statement
- 4.5 The General Term
- 4.6 The Binomial Series.
- 4.7 Problems

5 PARTIAL FRACTIONS 6 Hrs

- 5.1 Introduction
- 5.2 Linear Distinct Factors Case I
- 5.3 Linear Repeated Factors Case II
- 5.4 Quadratic Distinct Factors Case III
- 5.5 Quadratic Repeated Factors Case IV
- 5.6 Problems

6 FUNDAMENTALS OF TRIGONOMETRY 6 Hrs

- 6.1 Angles
- 6.2 Quadrants
- 6.3 Measurements of Angles
- 6.4 Relation between Sexagesimal & circular system
- 6.5 Relation between Length of a Circular Arc & the Radian Measure of its central Angle
- 6.6 Problems

- 7 TRIGONOMETRIC FUNCTIONS AND RATIOS 6 Hrs**
- 7.1 trigonometric functions of any angle
 - 7.2 Signs of trigonometric Functions
 - 7.3 Trigonometric Ratios of particular Angles
 - 7.4 Fundamental Identities
 - 7.5 Problems
- 8 GENERAL IDENTITIES 6 Hrs**
- 8.1 The Fundamental Law
 - 8.2 Deductions
 - 8.3 Sum & Difference Formulae
 - 8.4 Double Angle Identities
 - 8.5 Half Angle Identities
 - 8.6 Conversion of sum or difference to products
 - 8.7 Problems
- 9 SOLUTION OF TRIANGLES 6 Hrs**
- 9.1 The law of Sines
 - 9.2 The law of Cosines
 - 9.3 Measurement of Heights & Distances
 - 9.4 Problems
- 10 MENSURATION OF SOLIDS 30 Hrs**
- 10.1 Review of regular plane figures and Simpson's Rule
 - 10.2 Prisms
 - 10.3 Cylinders
 - 10.4 Pyramids
 - 10.5 Cones
 - 10.6 Frusta
 - 10.7 Spheres
- 11 VECTORS 9 Hrs**
- 11.1 Scalars & Vectors
 - 11.2 Addition & Subtraction
 - 11.3 The unit Vectors i, j, k
 - 11.4 Direction Cosines
 - 11.5 Scalar or Dot Product
 - 11.6 Deductions
 - 11.7 Dot product in terms of orthogonal components
 - 11.8 Deductions
 - 11.9 Analytic Expression for $a \times b$.
 - 11.10 Problems.
- 12 MATRICES AND DETERMINANTS 9 Hrs**
- 12.1 Definition of Matrix
 - 12.2 Rows & Columns
 - 12.3 Order of a Matrix
 - 12.4 Algebra of Matrices
 - 12.5 Determinants
 - 12.6 Properties of Determinants
 - 12.7 Solution of Linear Equations
 - 12.8 Problems

Phy 133

APPLIED PHYSICS**Total Contact Hours**

Theory 72

Practical 108

T	P	C
2	3	3

OBJECTIVES

This course is designed to impart knowledge on the physical properties of bodies with particular reference to the engineering application.

DESCRIPTION

Measurements, Scalars and Vectors, Motion and Force, Gravitation, Equilibrium, Friction, Work, Energy and Power, Machines, Heat and Temperature, Motion in two Dimensions, Lights, Geometrical Optics, Electronics.

Sr.No.	Contents	Hours
1	Measurements. 1.1 Fundamental units and derived units. 1.2 Various systems of units and S.I. Units. 1.3 Concept of dimension/dimensional formula 1.4 Conversation from one system to other significant figures.	06
2	Scalars and Vectors. Vectors representations, addition, subtraction and multiplication, parallelogram law of forces, composition and resolution of vectors, diagrams. Rectangular component of a vector, dot product and cross product. Solution of numerical examples.	06
3	Motion and Force. Rest and motion, velocity, acceleration and deceleration. Equations of uniformly acceleration rectilinear motion. Motion under gravity, Newton's laws of motion, mass and weight, momentum and impulse, law of conservation of momentum and impulse, law of conservation of momentum. Numerical example on the above topics.	06
4	Gravitation. 4.1 Gravitation and gravity. 4.2 Law of universal gravitation. 4.3 Determination of mass of earth. 4.4 Variation of "g" with altitude and depth. 4.5 Numerical examples on the above topics.	04
5	Equilibrium. 5.1 Concurrent and non-concurrent forces. 5.2 Conditions of equilibrium for :- i. Concurrent forces. ii- Non-concurrent forces. 5.3 Equilibrium of objects supported by wires and ropes. 5.4 Centre of gravity, couples. 5.5 Torque and moment of couples. 5.6 Beam and ladders in equilibrium. 5.7 Numerical examples on the above topics.	04
6	Friction. 6.1 Co-efficient of friction, angle of friction, angle of contact of friction. 6.2 Laws of friction. 6.3 Motion of a body on a rough inclined plane. 6.4 Methods of reducing friction. 6.5 Numerical example on the above topics.	04
7	Work, Energy and Power. 7.1 Units of works. 7.2 Works done by a body moving in the gravitational field or work done by a variable force. 7.3 Power and its units. 7.4 Energy and its units.	

	7.5	Kinds of energy i.e. Kinetic and potential energy.	
	7.6	Inter conservation of K.E. and P.E.	
	7.7	Conservation of energy.	
	7.8	Numerical examples on the above topics.	06
8		Machines.	
	8.1	Definition of machine. Purpose of machines.	
	8.2	Mechanical advantage.	
	8.3	Efficiency. Kinds of simple machines.	
	8.4	Principle of work.	
	8.5	Mechanical applications.	
		i. Lever	
		ii. Screw.	
		iii. Differential Pulley.	
		iv. Pulley Block.	
	8.6	Numerical examples on the above mentioned top	04
9		Heat and Temperature.	
	9.1	Specific heat and its measurements.	
	9.2	Thermal expansion, Relation between three types of expansions.	
	9.3	Modes of transfers of heats.	
	9.4	Thermodynamics.	
	9.5	Laws of thermodynamics.	
	9.6	Carnot's cycle (heat engine).	
	9.7	Entropy.	
	9.8	Numerical examples on the above topics.	
	9.9	Three tests in one year of each of one hours duration.	04
10		Motion in two Dimensions	
		Projectile motion, motion in a circle, centripetal force, centrifugal force, angular displacement, angular velocity, radian degree, relation between linear & angular motion. Numerical examples on the above topics.	10
11		Lights.	
	11.1	Review laws of reflection and refraction.	
	11.2	Image formation by mirrors and lenses. Wave theory of light.	
	11.3	Nature of light.	
	11.4	Quantum theory of light.	
	11.5	Ordinary light and monochromatic light.	
	11.6	Dispersion of light.	
	11.7	Rainbow, Electromagnetic spectrum.	
	11.8	Emission of light by an atom.	
	11.9	Velocity of light.	
	11.10	Polarization of light waves.	10
12		Geometrical Optics.	
	12.1	Geometrical optics lens.	
	12.2	Types of lenses.	
	12.3	Centre of curvature.	
	12.4	Radius of curvature.	
	12.5	Principal axis.	
	12.6	Principal focus.	
	12.7	Focal length.	
	12.8	Optical Centre.	
	12.9	Power of a lens.	
	12.10	Rules for geometrical construction of image.	
	12.11	Deviation of lens formula.	
	12.12	Linear magnification.	
	12.13	Angular magnification.	
	12.14	Convex lens and image positions formed by it.	
	12.15	Derivation of formula for magnifying power in optical instruments.	
	12.16	Near and far points important lens defects.	
	12.17	How can these defects be removed.	

13**Electronics:**

Matter Atomic Number, Mass Number, Normal/Ground state of an atom,,
Excited and Ionized atom, Energy Bands in Solids, Conductors. Semi-
Conductors and Insulator, Intrinsic and Extrinsic Semi Conductors (N Types
and P Types Semi Conductor), P-N Junction, Forward Biased and Reverse
Biased of P-N Junction, Semi Conductors diodes, PNP and NPN Transistor
and their functions.

06

PHYSICS (PRACTICALS)

Sr.No.	Practicals
1	Volume of a solid cylinder using a vernier calipers
2	Capacity of a test tube using vernier calipers
3	Volume of a small sphere using a micrometer screw-gauge
4	Area of cross section of a wire using a micrometer screw gauge
5	Radius of curvature of spherical mirror using a spherimeter and calculation of its focal length
6	Addition of vectors by Rectangular components
7	Value of 'g' by free fall method
8	Conditions of equilibrium
9	'g' by simple pendulum and length of Second's pendulum
9	Verification of the following relations of the simple pendulum
	i) Time period is independent of mass
	ii) Time period is directly proportional to Sqrt of displacement and length
10	Surface tension of a liquid by capillary rise method
11	Young's Modulus of a wire by Searle's Apparatus
12	Determine specific heat of a solids by calorimeter
13	Determine moment of inertia
14	Determine mechanical advantage of included plane
15	Velocity of periodic waves by ripple tank
16	Frequency by Melde's Apparatus
17	Laws of vibration of stretched strings
17	Velocity of sound in air at 0°C by resonance tube apparatus using first resonance position
18	and applying end correction
19	Velocity of sound in air at 0°C by resonance tube using two resonance positions
20	Focal length of a convex lens by parallax method
21	Focal length of a convex lens by displacement method
22	Focal length of a concave lens by using a concave mirror
23	Focal length of a concave lens by using a convex lens
24	Refractive index of the material of a prism by critical angle method
25	Refractive index of a liquid using a concave mirror
26	Refractive index of glass using a spectrometer
27	Wave length of sodium light by Newton's Rings
28	Wave length by diffraction grating
29	Setting up of a compound microscope : determination of its magnifying power

Total Contact Hours

Theory 72

Practical 108

T
2**P**
3**C**
3**OBJECTIVES**

This course has been designed to impart through understanding of the subject with special application of theoretical knowledge and practical problem.

DESCRIPTION

Review of Basic Chemistry, Water, Acid, Bases and Salt, Chemical Bonding, Chemistry of Building Materials, Chemistry of Carbon, Corrosion, Refractory Materials and Abrasives.

Sr.No	Contents	Hours
1	i) Review of basic chemistry:- Matter, mixture, compound, element, Radical, Valency formula, atom, atomic weight, atomic number, Structural formula weight, Periodic Table, Numerical problems. ii) Define Chemistry, state units of measurements, Define SI system measurement of mass length, time and other physical quantities, Metal, Non-Metals Symbol, Atoms and Molecules, Atomic mass, Molecular, Mass, Gram Atomic Mass, Gram Molecular Mass, Avogadro's number, Law of constant composition, Percentage composition. i) Chemical equation, how to write it. iii) Characteristics and balancing, chemical reaction and its types.	
2	Water:- Sources of water. Impurities of water, their removal. Hard and soft water. Causes and effects of hard water.	
3	Removal of hardness of water. Composition of water and its structure. Water as solvent. Hydration. Hydrolysis.	
4	Practical on removal of hardness and water solvent Factors affecting solubility Saturated, unsaturated and super saturated solutions. Acids, bases and salt	
5	i) Definition of Acids bases and salts. ii) Manufacturing of H_2SO_4 , HCl and HNO_3 iii) Properties of acid bases salts and their uses. Action of acids on alkalies, Metal and non Metals.	
6	CHEMICAL BONDING i) Chemical bonding Types of chemical bonds, e.g. Ionic, bonds, Covalent bonds, (Polar and non-polar. i) Chemistry of building materials, e.g. Cement, glass, plastic and polymers, Steel, and Fiber Glass; Their Extraction, composition, properties and uses.	
7	CHEMISTRY OF CARBON i) Allotropic forms of carbon ii) Minerals bases on carbon e.g. diamond, graphite, coal. iii) Their properties and uses Analysis of coal.	
8	CORROSION i) Causes and effects of Corrosion ii) Protective measures against corrosion. iii) Rusting of Iron. Types of corrosion. Refractory Materials and Abrasives	

9	i) Introduction to Refractories ii) Classification of Refractories iii) Properties and Uses. iv) Introduction to Abrasives. Artificial and Natural Abrasives and their uses.	
----------	--	--

CHEMISTRY (PRACTICAL)

Sr.No	Practicals
1	To prepare standard solution of Oxalic acid and with its help standardize a solution of NOH.
2	Prepare approximate N/10 solution of H ₂ SO ₄ and determine its exact normality by titration it against standard N/10 NaOH
3	To determine the heat of Neutralization of strong base (NaOH)
4	To separate a mixture of various inks by paper chromatography
5	To construct the ball and spring models of some simple chemical compounds
6	To construct the model of NaCl crystal
7	To determine the molecular weight by observing the depression in the freezing point by cryoscopy
8	Qualitative analysis of salts
9	Detection of elements in organic compounds i.e. C, H ₂ , N ₂ , S and Halogens
10	Identification of different solutions using (a) litmus (paper/solution) (b)PH paper
11	Temporary and permanent hard water and its removal
12	To determine the number of molecules of water of crystallization in sodium carbonate (washing soda) crystals

Total Contact Hours	T	P	C
Theory 72	2	3	3
Practical 108			

OBJECTIVES:- The main purpose of this course is to impart the fundamental concepts and principles of surveying and computation. Conceptual study and practice of measurement of distances and different methods of measurement difference in elevation and measurement of area and volume of geometrical and of irregular figures.

Sr.No.	Contents	Hours
1	Fundamental concepts Surveying, Uses of Surveying, Earth as a spheroid, Plane Surveying, Geodetic Surveying, kinds and operations of Surveying, Definitions used in Surveying. Units of measurements, precision of measurements, Principles Involved, Practice of Surveying, Requisite of a Good Surveyor.	08
2	Essential Features of Principal Surveying Instruments Principal Instruments. Engineer's Level, Engineers Transit, Level Tube and its sensitiveness. Adjustment of level tube. Leveling head, Telescope, Plumb Bob.	04
3	Field Work Study the problem, Relation between Angles and Distances, precision of Angular measurement. Signals, Care and handling of instruments, Adjustment of Instruments, Recording Data.	04
4	Computations Office computation, checking, significant figures, Precision of computations, computations for angles and distances. Trigonometric Ratios of a right angle triangle. Types and solution of triangles. Circles numerical problems.	06
5	Errors General Sources of Error, kinds of error, systematic and Accidental Errors compared, Discrepancy, Theory of Probability. Observations of Different Reliability. Probable value, Probable Error, Observations of different reliability. Weight Adjustment of weighted observations, Numerical problems.	08
6	Measurements of Distances General Methods- Pacing, Stadia, Direct Measurement, Other methods, Choice of methods. Tapes, chaining pins, range poles, chaining on smooth level ground, Horizontal Measurements over uneven or sloping ground, measurement of slopes, correction for slope, Errors in Chaining, Errors and corrections, corrections for temperature, tension, sag, normal tension, combined correction, precision of measurement with tape, surveys with tape, measurement of angles, Erecting perpendicular to line, Irregular boundary, obstructed distances. Surveying distance. Measurement. Principle of distance measurement by EDM's. Modern equipments of EDM and their adjustments. Instrumental errors in EDM, optical Square, Sextant, Numerical Problems	12
7	Measurement of Difference in Elevation Definitions, curvature and refraction, Methods, Barometric leveling, Indirect leveling. Direct leveling, Dumpy Level, Tilting Level, Auto Level. Abney Hand Level and Clinometer, Leveling Rods, Turning points. Engineers level, Reading the Rod. Adjustments of the level, Numerical Problems	06
8	Differential Leveling General, Bench Marks, Definitions, Procedure, Balancing Back sight and fore sight distances, Differential Level notes, Precise Differential Leveling, Reciprocal Leveling, Errors in Leveling, Precision of Differential Leveling, Adjustment of Elevations, Intermediate Bench Marks, Level over Different Routes, Numerical problems.	06
9	Profile Leveling. Profile Leveling and Notes, Cross Sections and notes, Preliminary Route Cross Section Levels and notes, Plotting Profiles, Fixing Grades, Finishing the Profile, Plotting Cross sections, Numerical Problems	06
10	Measurement of Area and Volumes. Areas of Regular Figures, Squares, Triangles, Trapezoid, Trapezium, Circle, Sector of a circle, Flat Ring Annular Ellipse, Cuvre surface of a cylinder cone, Volume of regular solids, rectangular, cylinder a prism and a cone of pyramid, Use of Planimeter, pantograph, Measurements of areas of irregular figures, Numerical Problems.	12

SURVEYING – I (PRACTICALS)

Sr.No	PRACTICALS
1	Measurement of distance with the help of pacing chain, tape and ranging pole or ranging level on un-even or sloping ground.
2	Applications of correction for temperature, tension, sag.
3	Erecting perpendicular to a line with the help of tape and optical square. Measurement of angle with sextant.
4	Running of differential leveling from a bench mark to another bench mark with intermediate bench mark over different routes. Adjustment of elevation of the leveling network with a close leveling route.
5	Running of profile level, profile level notes, plotting of profile, preliminary route cross section, plotting cross section and fixing grades.
6	Measurement of areas of regular figures Trapezoid, Trapezium, sector of a circle, Annular Ellipse, Volume of regular solids rectangular cylinder, a prism and a cone or pyramid.
7	Use of planimeter, pantograph, measurement of areas of irregular figures by planimeter.

Total Contact Hours

Theory 72

Practical 0

T	P	C
2	0	2

OBJECTIVES

The main purpose of this course is to impart basic knowledge to the students regarding mining, different methods of extraction of ores and processes.

DESCRIPTION

Definitions relating to Mining along with sketch, Four stages in the life of mine, Classification of mining method, Mine supports, Drilling & boring, Explosive and blasting, Mine ventilation, Material handling (Loading & Transportation), Mine Water & Disposal, Value and importance of mining in the Pakistan.

Sr. No.	Contents	Hours
1	<p>1. DEFINITIONS RELATING TO MINING ALONGWITH SKETCH. Mining, Prospecting, Exploration, Development, Exploitation, Vein, Shoot, Bedded Deposits, Masses, Outcrop, Float, Gossan, Dip, Strike, Apex, Hanging Wall, Foot Wall Shaft, Drift, Crosscut, Level, Sump, Winze, Raise, Stope, Tunnel, Adit, Collar, Ore, Gangue, Country Rock, Waste, Mineral, Metallic, Non-Metallic, Lode, Drives, Draw Point, Mineral Processing.</p> <p>B. FOUR STAGES IN THE LIFE OF MINE a) Prospecting b) Exploration c) Development d) Exploitation & Reclamation (Short notes differentiating each)</p>	08
2	<p>CLASSIFICATION OF MINING METHOD Two types of Classes 1. Surface Mining Methods i) Open Pit Mining, ii) Open Cast Mining, iii) Quarrying, iv) Auger Mining, v) Hydraulic Mining, vi) Dredging Mining, vii) Borehole extraction, viii) Leaching 2. Underground Mining Methods Self Supported Mining Method i) Roam & Pillar Mining, ii) Stope & Pillar Mining, iii) Shrinkage Stopping, iv) Sub-level Stopping. 3. Supported Mining Methods i) Cut & Fill Stopping, ii) Stull Stopping, iii) Square set Stopping D. Caving Mining Methods i) Long wall Mining, ii) Sub-level Caving, iii) Block Caving (Short note on each).</p>	08
3	<p>MINE SUPPORTS A. Types of Supports a. Timber Supports: Types, Advantages and Dis-advantages. 2) Steel Supports: Types, Advantages and Dis-advantages. i) Arches ii) Steel Props b. Roof Bolting: Types, Advantages and Dis-advantages.</p>	04
4	<p>DRILLING & BORING A. Difference between drilling & boring B. Main components of drilling system i) Drilling Machine ii) Drilling Rods iii) Bits (Short Notes on each). C. Types of Drilling Machines Rotary, Percussive and Churn Drilling (Difference of operation) D. Types of hammer drills = Drifter, Sinker & Stopper (Short notes on each). E. Types of Boring Machines</p>	08

	F. Percussive Boring & Rotary Boring (Difference of operation).	
5	EXPLOSIVES & BLASTING	12
	A. Definitions.	
	2. Types of Explosive	
	i) Low Explosive – Black Powder & Gun Powder	
	ii) High Explosive – Ammonium Nitrate Base Explosive, Nitro Glycerin Base Explosives: Water base explosives Slurry Explosives, Emulsions.	
	iii) Permissible Explosives Cooling Agents, Sheathed Explosive and Non- Sheathed Explosive.	
	3. Blasting	
	i) Firing Method Non-Electric Firing, Cap & fuse, Detonating Cord & Nonel and Electric Firing.	
	ii) Types of Detonators	
	iii) Surface & underground pattern with sketch.	
	iv) Controlled blasting techniques	
6	MINE VENTILATION	10
	A. Composition of Atmospheric Air. Oxygen, Nitrogen, Carbon Di-oxide & Argon (Brief note on each)	
	B. Name of Mine Gases and properties of: - Methane, -Fire Damp, Black Damp, White Damp, Stink Damp, After Damp and Nitrous fumes.	
	C. Natural Ventilation – Definition and How produced. Mechanical Ventilation – Definition and How produced.	
7	MATERIAL HANDLING (LOADING & TRANSPORTATION)	12
	A. Surface Loading & Excavation Machines	
	i) Power Shovel (Hydraulic, Electric & Backhoes)	
	ii) Draglines	
	iii) Bulldozer	
	iv) Scraper	
	v) Bucket Wheel Excavator	
	vi) Front End Loader	
	vii) Trucks/ Dumpers/ Tractors trolleys	
	B. Underground Transportation	
	i) Trackless Haulage	
	- Wheel Barrows	
	- Shuttle Cars	
	- Conveyors	
	ii) Track Haulage	
	- Locomotive Haulage	
	- Types: Diesel, Battery, Over head Trolley wire Locomotives.	
	iii) Rope Haulage System	
	- Types: Direct or Main Rope Haulage, Main & Tail Rope Haulage, Endless Rope Haulage and Gravity Haulage.	
8	MINE WATER AND DISPOSAL	06
	A. Origin and Types of Mine Water	
	B. Types of Pumps	
	i) Reciprocating Pumps, ii) Centrifugal Pumps iii) Submersible pumps, iv) Sludge pumps, v) Mono pumps	
	C. Siphon (Introduction).	
9	VALUE AND IMPORTANCE OF MINING IN THE PAKISTAN	04
	A. Mineral Potential of the Country.	
	B. Nature of Mining Industry.	
	C. Present Status of Mining Industry and Major Constraints.	
	D. Future Prospects.	

MT 133

ELEMENTARY DRAWING**Total Contact Hours**

Theory 36
Practical 216

T P C
1 6 3

OBJECTIVES

The course has been designed to give the engineering technicians enough appreciation and understanding of machine drawing so as to enable them to:

- a) Read and interpret engineering drawing;
- b) Execute simple working drawings;
- c) Give a sound foundation for advance machine drawing.

DESCRIPTION

Fundamental of Drawing, Lettering, Lines, Geometrical Construction, Term used in circle, Introduction of simple object.

Sr.No.	Contents	Hours
1	Fundamental of Drawing a) Proper use and care of drawing instruments. i. Drawing Board ii. Drafting Table iii. T-Square iv. Set Square v. Scales vi. Dividers vii. Compass viii. Drawing Pencil ix. Eraser x. Instruments Box xi. Protractor xii. French Curves	3
2	b) Layout of Drawing Sheets. Lettering Types of lettering:- a) Vertical or upright lettering i. Single Stroke ii. Double Stroke b) Inclined lettering i. Single Stroke ii. Double Stroke Modern Roman Letter Titles and Labels Precaution and Practice in use of stencils.	2
3	Lines Types of lines, continuous thick & thin line, Centre line, Hidden line, Shot and long break line, overhead line, dimension line, construction line.	2
4	Geometrical Construction Construction of lines, angles, triangles, square, hexagon, pentagon, rhombus, trapezoid, ellipse, parabola.	
5	Term used in circle Diameter, Radius, Chord, Segment, Normal, Tangent, Sector Semi-circle. Practice of the following:- - To bisect a given straight line, to draw a perpendicular on a line through a point not the line - To divide a given line into a number of equal parts - To describe a circle through three given points	6

	- To draw a tangent to a given circle from a given point outside the circle	
	- To draw a tangent to two circles of equal size	
	- To inscribe a hexagon in a circle	
	- To construct regular pentagon straight lines of right angles	
	- To each other	
	- To draw an arc of radius, R, touching two given arcs as radius R1 and R2	
	- To draw an arc of radius R tangential to a given line and a given arc	
	- To draw two tangents to a given circle to meet at a given angle	
6	Making free hand proportional sketches of simple regular objects, free hand sketching of cross section of a road, railway line and canal.	05
7	Introduction and practice in drawing of simple plain scale, diagonal. Scale and vernier scale.	04
8	Adjustment of working space, use of proper scale, marking of north line and directions, index of line.	04
9	Introduction of simple object.	
10	Elevation & plan of a section, Sectioning: Full section and half section, Dimensioning: Base line dimension etc, Orthographic projection, Planes of projection, selection of views, First Angle Projects, Third Angle projection, views of an object	06
	a) Elevation of front view	
	b) Top view	
	c) Right side view	
	d) Left side view	
	e) Rear view	
11	f) Bottom view	02
12	General Rules of Orthographic Projection.	
13	Cross Section of wall showing different parts	02
	Using pantograph, enlarging and reducing maps. Use of proportional compass.	

ELEMENTARY DRAWING (PRACTICAL)

Sr.No	Practical
1	<p>Drawing of lines, lettering, numbers, Drawing bisection of lines, angles, construction of pentagon. Hexagon, octagon, ellipse, radius curves tangential arcs. Drawing circle, triangles, quadrilaterals, title block curved surfaces. Draw isometric views of section, channel section, isometric circles. Draw isometric block with isometric circles on its faces. Isometric views of I-section, isometric circles.</p>
2	<p>Drawing of different types of lines. Dimensioning method. Division of sheet orthographic view of channel, wedge, T-section, nuts bolt, 1st angles projection of V-Block.</p>
3	<p>Types of lines Draw of several objects with section views. 1st angle projection of help section view of spindle gland.</p>
4	<p><u>Geometrical Construction</u> Construction lines, angle, triangles, square, hexagon, pentagon, rhombus, trapezoid ellipse, parabola.</p>
5	<p><u>Terms used in circle</u> Diameter, radius, chord, segment, tangent, sector, semicircle</p>
	<p>Practical of the following</p> <ul style="list-style-type: none"> - To bisect a given straight lines - To draw a perpendicular line on a point not a line - To divide a given lines in to a number of equal parts - To describe a circle through three given points. To draw a tangent to a given circle from a given point out side the circle - To draw a tangent to two circles of equal size - To inscribe a hexagon in a circle - To construct regular pentagon straight line of right angles - To draw an arc of radius R, touching two given arcs as radius R₁ and R₂ - To draw an arc of radius R tangential to a given line and a given arc - To draw two tangents to a given circle to meet at a given angle
6	<p>Free hand sketches of simple regular objects, free hand sketching of cross section of a road, railway line and canal.</p>
7	<p>Drawing of simple plain scale, diagonal scale and vernier scale</p>
8	<p>Working space, marking of north line and directions index of line.</p>
9	<p>Elevation and planes of section orthographic projection, First angle projection and third angle projection, Top view elevation of front view, Right and left side views.</p>
10	<p>Cross section of wall showing different parts enlarging and reducing maps.</p>

Total Contact Hours

Theory	36
Practical	108

T	P	C
1	3	2

OBJECTIVES

To give the trainees basic concept of information technology and use of application software.

DESCRIPTION

Basic concepts of Information Technology, Information Networks, Data Communication, Application and use of Computers, Hardware and System Software, Computer Operations, Security Copyright and the Law, Operating System (Windows), Word Processing, Spread Sheet, Internet Browsing and using E-mail.

Sr.No.	Contents	Hours
1	Basic of Information Technology Basic concepts of IT, Hardware VS Software Input and Output Devices Operating System Vs. Computer Programs Basic Units of Data Storage, Storage and Memory	03
2	Information Networks The technology of workgroup computing The benefits of E-mail What is the internet and how it is useful? Lan Vs. Wan Concepts, Models, Standards, Network Topologies	03
3	Data Communications Introduction of Data Communication Types of Data Encoding different types of data Transmission media Modem	03
4	Applications and Use of Computers Computers and the Opportunities offered by their use Types of Systems Encountered in Everyday Life, Homes, Business, Industry, Education Understand how Computers can Simplify our work practices	03
5	Hardware and Systems Software Computer Architecture Block Diagram of Computer (CPU, RAM, ROM, input/output, Data Bus, Address Bus, Control Bus and Ports) Registers, Program Counter (PC), Memory Address Register (MAR), Memory Buffer Register (MBR), Instruction Register (IR) Stack.	10
6	Computer Operations Simple Machine Instructions Format Processing Machine Instructions (Fetch-decode-execute) Understand the Functionality of Different Types of Software.	
7	Security Copyright and the Law Viruses and Anti-Virus issues Data Protection and Privacy issues Data Protection Legislation and copyright issues	04

Use of Application Software		
8	Operating Systems (Windows)	02
	Introducing GUI Operating Systems	
	OS Components and Selection Techniques	
	Starting to use GUI Operating System	
	File and Disk Management	
	Control Printing Jobs	
9	Word Processing	02
	Starting to use Word Processor	
	Font, Paragraph, Page Formatting	
	Introducing Tables and Columns	
	Using the Clipboard	
	Printing	
	Tables, Text Boxes, Graphics and Word art	
10	Spread Sheet	03
	Introduction to Spread Sheet Packages	
	Spread Sheet Layouts	
	Formatting and Customizing Data	
	Formulas, Functions and Named Ranges	
	Introducing Charts	
	Printing Worksheets and charts	
11	Internet Browsing and Using E-Mail	03
	Introduction to Browsing	
	Addresses, Links & Downloading	
	Searching the Internet	
	E-Mail & Newsgroups	

COMPUTER-I (PRACTICAL)

Sr.No	Practicals
1	<p>WINDOWS</p> <ol style="list-style-type: none"> 1) <ol style="list-style-type: none"> a) Use of Start Menu b) Manage Program Group & Document Group` c) How to access Search Group d) Customize the Desktop 2) Use of Windows Help 3) Use of Windows Accessories: <ol style="list-style-type: none"> a) Word Pad b) Calculator c) Paint 4) <ol style="list-style-type: none"> a) Managing Files and folders using My Computer b) Managing Files and folders Windows Explorer c) Managing Recycle Bin operations. 5) <ol style="list-style-type: none"> a) Installation of given printer driver b) Setting up different properties of printer c) Managing the ques of printing job
2	<p>MS Word</p> <ol style="list-style-type: none"> 1) <ol style="list-style-type: none"> a) Open and Save files in specified path or New Folder b) Selection of text by different methods and applying different operations: Copying, Moving (by Clipboard and Drag _ & _ Drop methods) Deletion.) Formatting text (Bold, Underline, Font, Color etc.)) Use of Undo and Redo) Use of Text Alignment, Indenting and managing space, Also use of Bullets and Numbering.) Use of Page Setup including Page Margin, Size, Paper Source and Layout.) Skill of Printer Settings.) Use of Tables and Columns.) Use of Spell Check, Grammar and Thesaurus. 9) Use of Shortcuts. <p>MS-EXCEL</p> <ol style="list-style-type: none"> 1) Inserting & Deleting Cells, Rows and Columns
3	<ol style="list-style-type: none"> 2) Managing Worksheets 3) Formatting and Customizing Data. 4) Use of Formulas and Functions (formatting numbers, decimal, places, column & rows setup etc.) 5) Drawing of Different Types of Charts 6) Use of Page Setup and Printing Configurations 7) Use of shortcuts. <p>INTERNET EXPLORER</p> <ol style="list-style-type: none"> 1) Send/receive email to single user, multiple users
4	<ol style="list-style-type: none"> 2) Attach/Detach files with mail 3) Browsing Internet 4) Use of shortcuts 5) Proper use of search engines

ENG 112

ENGLISH

T	P	C
2	0	2

Total Contact Hours

Theory 64

Practical 0

OBJECTIVES

At the end of the course, the students will be equipped with cognitive skill to enable them to present facts in a systematic and logical manner to meet the language demands of dynamic field of commerce and industry for functional day-to-day use and will inculcate skills of reading, writing and comprehension.

COURSE CONTENTS**ENGLISH PAPER "A"****1. PROSE/TEXT 16 hrs**

1.1 First eight essays of Intermediate. English Book-II

2. CLOZE TEST 4 hrs

1.2 A passage comprising 50-100 words will be selected from the text. Every 11th word or any word for that matter will be omitted. The number of missing word will range between 5-10. The chosen word may or may not be the one used in the text, but it should be an appropriate word.

ENGLISH PAPER "B"**3. GRAMMAR 26 hrs**

3.1 Sentence Structure.

3.2 Tenses.

3.3 Parts of speech.

3.4 Punctuation,

3.5 Change of Narration.

3.6 One word for several

3.7 Words often confused

4. COMPOSITION 8 hrs

4.1 Letters/Messages

4.2 Job application letter

4.3 For character certificate/for grant of scholarship

4.4 Telegrams, Cablegrams and Radiograms, Telexes, Facsimiles

4.5 Essay writing

4.6 Technical Education, Science and Our life, Computers,

Environmental Pollution, Duties of a Student. **4 hrs****5. TRANSLATION 6 hrs**

5.1 Translation from Urdu into English.

For Foreign Students: A paragraph or a dialogue.

RECOMMENDED BOOKS

1. Intermediate English Book-II.

2. An English Grammar and Composition of Intermediate Level.

3. A Hand Book of English Students by Gatherer

Eng-112ENGLISH**INSTRUCTIONAL OBJECTIVES****PAPER-A****1. DEMONSTRATE BETTER READING, COMPREHENSION AND VOCABULARY**

1.1 Manipulate, skimming and scanning of the text.

1.2 Identify new ideas.

1.3 Reproduce facts, characters in own words

1.4 Write summary of stories

2. UNDERSTAND FACTS OF THE TEXT

- 2.1 Rewrite words to fill in the blanks recalling the text.
- 2.2 Use own words to fill in the blanks.

PAPER-B**3. APPLY THE RULES OF GRAMMAR IN WRITING AND SPEAKING**

- 3.1 Use rules of grammar to construct meaningful sentences containing a subject and a predicate.
- 3.2 State classification of time, i.e. present, past and future and use verb tense correctly in different forms to denote relevant time.
- 3.3 Identify function words and content words.
- 3.4 Use marks of punctuation to make sense clear.
- 3.5 ' Relate what a person says in direct and indirect forms.
- 3.6 Compose his writings.
- 3.7 Distinguish between confusing words.

4. APPLY THE CONCEPTS OF COMPOSITION WRITING TO PRACTICAL SITUATIONS

- 4.1 Use concept to construct applications for employment, for character certificate, for grant of scholarship.
- 4.2 Define and write telegrams, cablegrams and radiograms, telexes, facsimiles
- 4.3 Describe steps of a good composition writing.
- 4.4 Describe features of a good composition.
- 4.5 Describe methods of composition writing.
- 4.6 Use these concepts to organize facts and describe them systematically in practical situation;

5. APPLIES RULES OF TRANSLATION

- 5.1 Describe confusion.
- 5.2 Describe rules of translation.
- 5.3 Use rules of translation from Urdu to English in simple paragraph and sentences.

اسلامیات / مطالعہ پاکستان

ٹی پی سی
1 0 1
کل وقت: 20 گھنٹے

GEN III

سہل اول

حصہ اول اسلامیات

حصہ دوم مطالعہ پاکستان

موضوعات حصہ اول اسلامیات

کتاب و سنت

قرآن مجید (ا)

1- تعارف قرآن مجید 2- نزول قرآن 3- کئی و معنی سورتوں کی خصوصیات 4- وحی کی اقسام 5- پندرہ منتخب آیات مع

ترجمہ

- 1.1 تنالوا البر حتی تنفقوا مما تحبون
- 1.2 واعتصموا بحبل اللہ جمیعاً ولا تفرقوا
- 1.3 ولا یجبر منکم شیئاً قوم علی ان لا تعدلوا
- 1.4 ان اللہ ینزل الامثال علی من یشاء
- 1.5 ان اللہ ینزل الامثال علی من یشاء
- 1.6 ان الصلوٰۃ تنہی عن الفحشاء والمنکر
- 1.7 لقد کان لکم فی رسول اللہ سۃ حسنة
- 1.8 ان اکرمکم عند اللہ اتقاکم
- 1.9 وما آتاکم الرسول فخذوه وما نہی عنہوا فانتہوا
- 1.10 ولو فو بالعهد
- 1.11 وما شروہن بالمعروف
- 1.12 یمحق اللہ الربو ویربب الصمدقات
- 1.13 واصبر علی ما اصابک
- 1.14 وقولوا قولا سدیداً
- 1.15 ان الدین عند اللہ الاسلام

(ب) سنت

- 1- سنت کی اہمیت
- 2- دس منتخب احادیث مع ترجمہ و تشریح

- 1- اعمالاً اعمال بالنیات
 - 2- اہمیت لایم مکارم الاخلاق
 - 3- لایوم من احدثکم حق یحب الاخیرہ ما یحب لنفسہ
 - 4- المسلم من سلم المسلمون من سب المسلمون من لسانہ ویدہ
 - 5- فی امنت باللہ سلم استقم
 - 6- حیرکم خیرکم لالہ
 - 7- سبب المسلم فسوق وقتالہ کفر
 - 8- المؤمن اخو المؤمن
 - 9- کف المسلم عنی المسلم حر لہ یمعہ ومالہ وفرقہ
 - 10- ایتہ المنلق ثلاث اذا حدیث کتب وفاقا وتمن حبان واناؤ فنا خلف
- دین اسلام

2.1 ہنرم کے بنیادی مقصد کی وضاحت اور انسان کی اخروی و مادی زندگی پر ان کے اثرات

- 1- تومید
 - 2- رسالت
 - 3- آخرت
 - 4- ملائکہ
 - 5- آسمانی کتب
- 2.2 عملیات

1- نماز 2- روزہ 3- حج 4- زکوٰۃ

مندرجہ بالا عملیات کی اہمیت و فضیلت، مکمل اور انسان کی اخروی و مادی زندگی پر ان کے اثرات

مدرسی مقاصد

1- قرآن مجید

- عمومی مقصد: طالب علم پر سمجھنے کے قتل ہو کر اسلام کی تعلیمت کا اصل سرپوشہ قرآن مجید ہے
 خصوصاً مقصد: طالب علم اس قتل ہو جانے کا کہ
 قرآن مجید کی تعریف کر سکے گا
 قرآن مجید کے نزول کی صورت بیان کر سکے
 قرآن مجید کی کسی دینی سورتوں کی پہچان کر سکے
 منتخب آیات کا ترجمہ و تشریح کر سکے
 عمومی مقصد: یہ سمجھنے کے قتل ہو جانے کا کہ منتخب قرآنی آیات کے ذریعے اسلامی تعلیمت کا مفہوم کیا ہے
 قرآنی آیات کا ترجمہ تشریح کر سکے
 قرآنی تعلیمت کی روشنی میں اپنی اور معاشرتی اصلاح کر سکے

2- سنت

- عمومی مقصد: طالب علم سنت نبوی کی اہمیت اور ضرورت کو اچھی طرح سمجھنے کے قتل ہو جانے کا
 خصوصاً مقصد:
 سنت کی تعریف بیان کر سکے
 سنت کی اہمیت و ضرورت کی وضاحت کر سکے
 سنت کی روشنی میں اسوہ حسنہ پر عمل کر سکے
 منتخب احادیث نبویہ
 عمومی مقصد: احادیث کی روشنی میں اخلاقی اقدار سے سکھانے حاصل کر سکے
 خصوصاً مقصد: احادیث کا ترجمہ و تشریح کر سکے
 رسول اللہ ﷺ کے اسوہ حسنہ کا، پیغمبر کا، کلمہ سدا ہو سکے

دین اسلام
 عمومی مقاصد: دین اسلامی کے بنیادی مقاصد اور عبادت کے بارے میں جان سکنے اور بیان کر سکنے
 خصوصی مقاصد
 لفظ دین اسلام کے لغوی اور اصطلاحی معنی بیان کر سکنے
 اسلام کے بنیادی مقاصد کی اہمیت بیان کر سکنے
 اسلام کے بنیادی مقاصد سے انسان کی انفرادی و اجتماعی زندگی پر پڑنے والے اثرات بیان کر سکنے
 عبادت کے لفظی و اصطلاحی معنی بیان کر سکنے
 عقیدے اور عبادت کا فرق بیان کر سکنے
 عبادت (نماز روزہ حج زکوٰۃ) کے فوری احکامات اور نسلی زندگی پر ان کی اثرات بیان کر سکنے
 اسلامی مقاصد و عبادت کے مطابق اپنی زندگی ڈھل کر ایک اچھا مسلمان بن سکنے

اغیر مسلم طلباء کے لئے

GEN III

نصاب امتلاقیات سائنسوں
حصہ دوم ملاحظہ پاکستان

کے بی بی کے
1 0 1
کل وقت - 20 گھنٹے

موضوعات

امتلاقیات کے تحریف اور اہمیت
امتلاقیات کا معیار (آٹوم: شکل، المی: کتب)
سندرجہ اہل الخلق کی وضاحت

- ☆ وقت داری
- ☆ وقت داری
- ☆ نظم و ضبط
- ☆ راست گوئی
- ☆ صبر و استقامت
- ☆ حوصلہ مندگی
- ☆ وقت کی پابندی
- ☆ صفائی
- ☆ اعتدال
- ☆ پابندی احرام
- ☆ مصلحت

نصاب اخلاقیات (اسلام لرنز)

تدریسی مقاصد

- عمومی مقاصد: اعلیٰ تعلقات کی وجہ سے کل ترقی میں کل قدر مستفاد کر سکے
- خصوصی مقاصد: طالب اس علم سے اس کی تہیں ہو گا کہ
- ۶۵ موضوعات کا مطلب بیان کر سکے
- ۶۶ عملی زندگی سے مشابہت کی نشاندہی کر سکے
- ۶۷ اپنی شخصیت اور معاشرے پر موضوعات کے مثبت اثرات پیدا کرنے کے طریقے بیان کر سکے
- ۶۸ وراثت داری کی اہمیت بیان کر سکے
- ۶۹ وفا داری کی اہمیت بیان کر سکے
- ۷۰ لقم و ضبط کی افلاحت بیان کر سکے
- ۷۱ صدق بیان کی ضرورت بیان کر سکے
- ۷۲ حوصلہ مندی کے فوائد بیان کر سکے
- ۷۳ برکت کی پابندی کے فوائد بیان کر سکے
- ۷۴ صفائی اور باہمی اختیار سے حسن کلر کوگی کو بیان کر سکے
- ۷۵ مصلحت کے فوائد بیان کر سکے

حصہ دوم	نصابہ: سہ ماہی (Gen III)	کل وقت 2 گھنٹے
	مذاہد پاکستان	
	موضوعات	
1	حسرت نگر: سسوں قوم میں آزادی نگر کی تاریخ مسعودوں میں سہ ماہی آزادی کی اہمیت اور ضرورت۔ (20)	
2	جسٹس غلامی کے فیصلے نظریہ پاکستان	
3	قیام پاکستان کی اساس (دین اسلام) قیام پاکستان کی غرض اہمیت نظریہ پاکستان کی وضاحت۔ نظریہ پاکستان اور مردم اقبال اور قائد اعظم کے ارشادات کی روشنی میں	
4	نظریہ پاکستان کا ترجمانی محمد بن قاسم کی آواز۔ مجید بگٹی اور شہدائے اہل تشیع کی تباہی خدایت سید احمد شہید کی تحریک مجاہدین	
5	قلمی تحریک علی گڑھ - خدایت احمدیہ (ایڈیٹر - مدرسہ لائٹنگ) - (مدرسہ) اسلامیہ کلج (ایڈیٹر) انجمن خدایت اسلام (ایڈیٹر)	

مطالعہ پاکستان (حصہ دوم)
درس کا مقاصد
حریت فکر:

- عمومی مقصد
- طالب علم یہ جان لے کہ اسلام میں اور مسلمان قوم میں آزادی فکر کی کیا اہمیت ہے
- خصوصی مقاصد
- ☆ حریت فکر کا معنی و مفہوم بیان کر سکے
- ☆ آزادی فکر کی اہمیت بیان کر سکے
- ☆ خصوصاً "اسلام میں آزادی اظہار رائے کی اہمیت بیان کر سکے
- ☆ ذہنی غلامی کے قومی سطح پر نقصانات کے بیان کر سکے
- ☆ بدسلکی غلامی قومی سطح پر نقصانات بیان کر سکے
- نظریہ پاکستان
- عمومی مقصد:
- نظریہ پاکستان (دین اسلام) سے پوری طرح واقفیت ہو جائے
- خصوصی مقاصد:
- ☆ نظریہ کی تعریف بیان کر سکے اور اس کی وضاحت کر سکے
- ☆ نظریہ پاکستان کی تعریف کر سکے اور اس کا مفہوم بیان کر سکے
- ☆ علامہ اقبال اور قائد اعظم کے فرمودات کی روشنی میں نظریہ پاکستان بیان کر سکے
- نظریہ پاکستان کا تاریخی پسلو
- عمومی مقصد
- ☆ نظریہ پاکستان کے تاریخی پس منظر سے واقفیت حاصل کر سکے
- خصوصی مقاصد:
- ☆ مجاہدین قاسم کے بارے میں بیان کر سکے

- ۱۵ محمد بن قاسم کے ہندوستان پر حملہ کی وجہ بیان کر سکتے
- ۱۶ محمد بن قاسم کے ہندوستان پر حملہ کے اثرات بیان کر سکتے
- ۱۷ بیان کر سکتے کہ ہندوستان میں ہندو مسلم دو قومی نظریے کا نکتہ آغاز کیا ہے
- ۱۸ مہد لطف خاں کی علمی خدمات بیان کر سکتے
- ۱۹ شہد ولی اللہ کی علمی خدمات بیان کر سکتے
- ۲۰ مہد لطف خاں اور شہد ولی اللہ نے جو تبلیغ دین اور صحافتوں میں سیاسی شعور پیدا کیا اسے بیان کر سکتے

علمی تحریکیں

- ۱۱ علمی مقصد
- ۱۲ برصغیر کی علمی تحریکوں سے آگاہی حاصل کر سکتے
- ۱۳ قصور میں مقصد:
- ۱۴ ملی مگرہ - رنج ہند - تحریک العلماء مدرسہ الاسلام، اسلام آباد - کلچر - انجمن صحافت اسلام نے تعلیم کے ذریعہ سیاسی شعور مسلمانوں میں پیدا کیا اسے بیان کر سکتے
- ۱۵ آذربائی ہند کے فلسفہ میں تحریک مہذبین کی خدمات بیان کر سکتے

L&MS 142

PRACTICAL TRAINING

T	P	C
0	6	2

Hours 216**GENERAL OBJECTIVES:**

After going through this course the students will be able to:

- 1) Show skill in using wood working hand tools making simple joints
- 2) Show skill in using metal working tools to make simple fitting jobs and articles
- 3) Show proficiency in using wood working tools to make complete wood joints and articles
- 4) Make accurately fitting and well finished total articles with the hand tools

Sr. No.	METAL WORK		Hours
1.	Theory	Introduction of the following metal working practices briefly:	12
	Practical	Measuring, marking, layout, cutting, striking, holding finishing and assembling Workshop practice	
2.	Theory	Name and classify the tools use for measuring, marking and layout, briefly stating their use	12
	Practical	Workshop practice	
3.	Theory	Name the tools used for holding, striking and forming briefly stating their use	12
	Practical	Workshop practice	
4.	Theory	Name the tools used for metal cutting and metal removing such as snips, saws chisel, drill, taps and disc, giving their uses in brief	12
	Practical	Workshop practice	
5.	Theory	Name the tools used for finishing, polishing and assembling, Briefly state their use	12
	Practical	Workshop practice	
6.	Theory	Explain the construction and working of the precise measuring instruments	12
	Practical	Workshop practice	
7.	Theory	Topic of week-11-12 continued	12
	Practical	Workshop practice	
8.	Theory	State the classification and specific uses of files and their care	12
	Practical	Workshop practice	
9.	Theory	State the classification and specific used of holding and assembly tools like screw drivers, vices, spanners, wrenches, clamps and their care	12
	Practical	Workshop practice	
10.	Theory	Name two wood working tools used for measuring, marking, layout, holding, cutting, striking, planning and finishing	12
	Practical	Workshop practice	
11.	Theory	Name the different kinds of wood explaining the structure of wood and different methods of seasoning. State the effect and diseases of wood	12
	Practical	Workshop practice	

12.	Theory Practical	Name of the various wood joints and state the use of different kind of wood and wood joints Workshop practice	12
13.	Theory Practical	Classify the wood planners, Explain the construction uses, care and maintenance of Jack/Plane Workshop practice	24
14.	Theory Practical	Name of the wood working saws and chisels. State their uses care and maintenance Workshop practice	24
15.	Theory Practical	Explain the following tools special to wood working, Bits, ratchet brace, claw hammer, pinner and nail Workshop practice	24

MATH 212

MATHEMATICS-II

Total Contact Hours
 Theory 72
 Practical 0

T	P	C
2	0	2

OBJECTIVES

To impart knowledge of the subject with special emphasis on the practical aspect of it. To enable the students to apply their skill and maths on various technical and technological problems.

DESCRIPTION

Function & Limits, Differentiation, Differentiation of Algebraic Functions, Differentiation of Trigonometric Functions, Differentiation of Logarithmic & Exponential Functions, Rate of change of Variable, Integration, Methods of Integration, Definite Integrals, Plane Analytic Geometry & Straight Line, Equations of the Straight Line, Equations of the Circle, Statistics.

Sr.No	Contents	Hours
1	Functions & Limits	04
	1.1 Constant & Variable Quantities	
	1.2 Functions & their classification	
	1.3 The concept of limit	
	1.4 Limit of a function	
	1.5 Fundamental Theorems on limit	
	1.6 Some important limits	
	Problems	
2	Differentiation	04
	2.1 Increments	
	2.2 Differential Coefficient or Derivative	
	2.3 Differentiation ab-initio or by first Principle	
	2.4 Geometrical Interpretation of Differential Coefficient	
	2.5 Differential Coefficient of X^n , $(ax + b)^n$	
	2.6 Three important rules	
	2.7 Problems	
3	Differentiation of Algebraic Functions	04
	3.1 Explicit Functions	
	3.2 Implicit Functions	
	3.3 Parametric forms	
	3.4 Problems	
4	Differentiation of Trigonometric Functions	04
	4.1 Differential Coefficient of Sin x, Cos x, Tan x from first principle	
	4.2 Differential Coefficient of Cosec x, Sec x, Cot x	
	4.3 Differentiation of inverse Trigonometric functions	
	4.4 Problems	
5	Differentiation of Logarithmic & Exponential Functions	06
	5.1 Differentiation of In x	
	5.2 Differentiation of Log a^x	
	5.3 Differentiation of a^x	
	5.4 Differentiation of e^x	
	5.5 Problems	
6	Rate of Change of Variable	04
	6.1 Increasing and decreasing functions	
	6.2 Maxima and Minima values	
	6.3 Criteria for maximum & minimum values	
	6.4 Methods of finding maxima & minima	
	6.5 Problems	

7	Integration 7.1 Concept 7.2 Fundamental Formulas 7.3 Important Rules 7.4 Problems	04
8	Methods of Integration 8.1 Integration by substitution 8.2 Integration by parts 8.3 Problems	06
9	Definite Integrals 9.1 Properties 9.2 Application to area 9.3 Problems	06
10	Plane Analytic Geometry & Straight Line 10.1 Coordinate System 10.2 Distance Formula 10.3 The Ratio Formulas 10.4 Inclination and slope of a line 10.5 The slope Formula 10.6 Problems	06
11	Equations of the Straight Line 11.1 Some important Forms 11.2 General Form 11.3 Angle Formula 11.4 Parallelism & Perpendicularity 11.5 Problems	06
12	Equations of the Circle 12.1 Standard form of Equation 12.2 Central form of Equation 12.3 General form of Equation 12.4 Radius & Coordinates of the Centre 12.5 Problems	08
13	Statistics 13.1 Concept of mean, median and mode. 13.2 Standard deviation. 13.3 Laws of probability. 13.4 Problems.	10

Total Contact Hours

Theory 72

Practical 108

T	P	C
2	3	3

OBJECTIVES

To give the trainees knowledge of Mine Ventilation and Working principles, methods and operation in the mine.

DESCRIPTION

Atmosphere, Detection of Mine Gases, Spontaneous Combustion, Ventilation, Natural Ventilation, Mechanical Ventilation, Laws of Flow Resistance, Mine Ventilation Survey, Distribution of Air.

Sr.No	Contents	Hours
1	The Atmosphere	12
	1. Definition.	
	2. Composition of Atmospheric Air	
	3. Natural Balance of Oxygen, Essential.	
2	Mine Gases	
	a) Their properties.	
	b) Detection.	
	c) Permissible limits (noxious and inflammable)	
	d) Physiological effects	
	Oxygen, Nitrogen, Carbon dioxide, Firedamp, Black Damp, White Damp, Stink Damp, After Damp, Oxides of Nitrogen, Sulphur Dioxide, Hydrogen, etc.	
	Mine Gases Detectors/ Monitors	04
	1. Oil Safety Lamp.	
	2. Digital Gas Detectors/ Monitors.	
	Their Principle of work and limitations of their application.	
	Mine Gas Sampling.	06
3	Spontaneous Combustion of Coal	
	1. Definition.	
	2. General conditions favoring oxidation of coal.	
	3. Situations where spontaneous combustion is most likely to occur.	
4	Factors of Pollution of Mine Atmosphere	
	i) Strata.	
	ii) Humidity and temperature.	
	iii) Geothermal gradient.	
	iv) Oxidation of certain minerals and materials.	
	v) Exhalation; exhaust from machinery.	
	vi) Dusts and their classification	
5	Flow of Air	06
	1. Definition.	
	2. Purpose.	
	3. Atmospheric Pressure.	
	4. Barometer, Principle	
	5. Thermometer, Types, Conversion of temperature units.	
	6. Hygrometer, Relative Humidity and its measurement.	
	7. Gas Laws, Boyle's Law, Charle's Law, Combination.	
	8. Measurement of Ventilating Pressure.	
6	Natural Ventilation	06
	1. How it is produced.	
	2. Calculation of Natural Ventilation Pressure	
	3. Factors affecting the Natural Ventilation Pressure	

	4.	Numerical	
7		Mechanical Ventilation	10
	1.	Types of Fans (Centrifugal and Axial Flow)	
	2.	Principle of Centrifugal Fan, Purpose of Spiral Casing	
	3.	Principle of Axial Flow Fan and Explanation	
	4.	Fan Laws	
	5.	Numerical.	
8		Laws of Flow Resistance	06
	1.	Law of Flow Resistance.	
	2.	Coefficient of Friction	
	3.	Resistance factors	
	4.	Atkinson equation	
	5.	Numerical.	
9		Ventilation Networks	06
	1.	Simple Networks	
	2.	Natural and Controlled Splitting	
10		Mine Ventilation Survey	10
	1.	Types of ventilation surveying.	
		a) Qualitative Surveying.	
		b) Quantitative Surveying.	
		c) Pressure Surveying.	
	2.	Measurement / Calculation of air quantity:-	
		a) Smoke or Dust Cloud	
		b) Anemometer.	
		c) Velometer.	
		d) Pitot Static tube.	
		e) Various formulae to measure areas of cross-section of airways	
	3.	Basis of Ventilation Requirements:-	
	i)	Labor employed.	
	ii)	Production requirements.	
	iii)	Presence of Methane Gas.	
	iv)	Special prevalent conditions. (Loco, Dusts, Gases).	
	v)	Numerical.	
11		Distribution of Air	06
	1.	Brattice Cloth.	
	2.	Stopping.	
	3.	Doors	
	4.	Air Crossings.	
	5.	Regulators.	
	6.	Booster Fans.	
	7.	Auxiliary Fans.	
	8.	Advantages and Disadvantages of Forcing Fans and Exhausting Fans	
	9.	Ascensional and Descensional Ventilation.	

MINE VENTILATION (PRACTICAL)

Sr.No	Practical
1	Detection of Mine Gases by Oil Safety Lamp
2	Detection of Mine Gases by Digital Gas Detectors/ Monitors
3	Measurement of Ventilating Pressure
4	Calculation of Natural Ventilation Pressure
5	Study of construction of Ventilation Fans (Centrifugal & Axial flow)
6	Measurement of air current a) Smoke or Dust cloud b) Anemometer c) Velometer d) Pilot Static tube
7	Construction of Air Regulators, Door, Stopping

L&MS 214

SURVEYING – II

Total Contact Hours	T	P	C
Theory 72	2	6	4
Practical 216			

OBJECTIVES:- To give the concepts of measurement of angles and directions to be measured by compass and Engineer's transit. Study of theory and practical transit tape survey, stadia surveying, map plotting, triangulation, triangulation survey, plain table survey, also to give the concept of calculations of areas of land by different methods and their comparison.

Sr.No	Contents	Hours
1	Engineers Transit. General, Types of Transit, Level Tubes, Telescope, Graduated circles, Use of Transit:- General, Setting up the Transit, Measuring a Horizontal Angle, Laying off a Horizontal Angle, Common errors, Measuring an angle by Repetition, Laying off an angle by Repetition, Measurement of vertical angle, Double sighting, Prolonging a straight line, Prolonging a Line past an obstacle, Running a straight line between two points, Determining an Inaccessible Distance, Adjustment of Transit, Precision of Angular Measurements, Numerical Problems. Total Station.	08
2	Measurement of Angles and Directions Location of Points, Meridians, True Meridian, Magnetic Meridian, Magnetic Needle, Magnetic Declination, Isogonics Chart, Variations in Magnetic Declination, Local attraction, Establishing the Meridian, Angles and Directions, Bearings, Azimuths, Deflection Angles, Angles to the Right, Interior Angles, Traverses, Methods of determining Angles and Directions, Direction with Magnetic compass, Pocket Compass, Surveyors Compass, Correction for Local Attraction, Adjustment of closed compass Traverse, Sources of error, Adjustment of compass, Numerical problem.	08
3	Transit Tape Survey. Transit Party, Equipment of Transit party, Transit stations, Transit Lines, Transit Surveys, Radiation, Intersection, Traversing, Deflection Angle Traverse, Azimuth Traverse, Traverse by Angles to the Right, Interior Angle Traverse, Checking Traverse, Precision of Transit Tape Traverse, Referencing Transit stations, Details from Transit lines, Locating Details, Numerical Problems	08
4	Stadia Surveying. Principal of substance Bar, Stadia Method, Stadia Hairs, Stadia Rods, Observation of Stadia Interval, Principle of the Stadia, Stadia constants, Stadia Interval Constant/factor, Inclined sights, permissible Approximation, Stadia Reductions, Beamen stadia Arc, Uses of Stadia, Indirect leveling by stadia, Surveying with plane Tabling and Stadia, Errors in Stadia, Surveying Effects of error in vertical angle , Precision of stadia Surveying.	08

5	<p>Map Plotting. General Process of making a map, Methods of plotting horizontal control, Cut off Lines, Method of Rectangular Co-ordinates, Latitude and Departures, Error of closure, Balancing the Survey, Adjustment of angular error, Compass and Transit Rules for Balancing a Survey, Cardinal Method of Balancing a Survey, Computation of Co-ordinates, Plotting control by Co-ordinates, Advantages and disadvantages of co-ordinate method, Plotting details, Omitted measurements, Length and Bearing of One side unknown, Length of one line and bearing of another line unknown, Length of two sides unknown, Direction of two sides unknown, Numerical Problems.</p>	12
6	<p>Triangulation. General Classification of Triangulation systems, Triangulation Figures, Choice of Figures, Strength of Figures, Reconnaissance, Signal and Instrument supports, station marks, Angle Measurements, Instruments for Measuring Angles, Azimuth Determination, Measuring the Base Line, Specifications for Base-Line Measurement, Errors in Base Line measurements corrections to Measured Length, Extension in Base Line, Reduction to Sea Level, Discrepancy between bases Computations Reduction to centre, Adjustment of a chain of Triangles, Adjustment of a Quadrilateral, Adjustment of a chain of Figures between two base lines, Computation of co-ordinates, Three Point problem, Numerical Problems</p>	08
7	<p>Plane Table. General, Relation between Transit and Plane Table, Accessories and instruments, Alidade, Setting up and Orienting the Table, Radiation , Traversing, Intersection, Graphical Triangulation, Resection, Resection after orientation by compass, Resection after Orientation by Back Sighting, Resection and Orientation, Three Point Problem, Trial Method, Tracing cloth method, Two Point Problem, Details with Plane Table, Adjustment of the Plane Table Alidade, Sources of Error, Numerical Problems</p>	08
8	<p>Calculation of Areas of Land. General, Methods of Determining Area, Area by Triangles, Area by co-ordinates, Principles of Double Meridian Distance Method, Computation of DMD, Area within closed Traverse by DMD Method, Double parallel Distances, Area of Tract with Irregular or curved Boundaries, Trapezoidal Rule, Offset at regular intervals, Simpson's One third rule, Trapezoidal and Simpson's Rules Compared, Numerical Problems.</p>	12

SURVEYING – II (PRACTICAL)

Sr No.	Practicals
1	Setting up a transit. Measurement of a horizontal angle with a transit. Measurement of angle by repetition. Laying off a horizontal angle. Laying off an angle by repetition. Measurement of vertical angle.
2	Double sighting. Prolonging a straight line. Prolonging a line past an obstacle. Running a straight line between two points. Determining an inaccessible distance.
3	Tape transit survey. Deflection angle traverse. Azimuth traverse. Traverse by angles to the right and interior angle traverse. Details from transit lines. Adjustment of tape transit survey.
4	Study of Stadia Rods Observation of stadia interval. Traversing with stadia.
5	Measurement of angle by repetition and reiteration in triangulation network. Measuring the base line and applying the correction to measured length. Adjustment of chain of triangles and quadrilateral in the triangular network. Adjustment of a chain of figures between two base lines computation of co-ordinates. Plane table, study of plane table parts, Beamen arc.
6	Orientation of the table, plotting by radiation and intersection. Resection after orientation by compass or by back sighting. Three point problem and two point problem. Detailed plotting with plane table.

Total Contact Hours

Theory 36

Practical 108

T	P	C
1	3	2

OBJECTIVES:-

Understand the estimation of earth work and complete estimate of single story building.

Work out the rate analysis and material statement of various items of work.

Understand complete estimates of bituminous and concrete roads, and sewerage scheme

Sr.No	Contents	Hours
1	Introduction i) Estimate and its types. ii) Data for estimating.	3
2	Specifications i) General specifications ii) Detailed specifications of all items of work.	4
3	Building Estimates i) Rough cost estimate of Buildings. ii) P.W.D., M.E.S. and English method of writing measurement. iii) Instructions on working out quantities of various types of wall. iv) Instructions on working out quantities and Abstract of quantities of various items of work of a single story building (building portion only). v) Study of schedule of rate and preparation of abstract of cost for all item of work of a single story building (building portion only).	8
4	Earth Work Estimates i) Units of measurement/payment. ii) Preparation of Profile for earth works. iii) Taking out quantities of embankment, roads, in plain and hills, irrigation channel (including remodeling).	5
5	Road Estimates i) Unites of measurements. ii) Instruction regarding complete estimate of bituminous road, cement concrete road.	3
6	Rate Analysis i) Instruction on Market rates, materials, labor and carriage. ii) Schedule of labor. iii) Rate analysis for: a) Cement concrete of ratios b) Brick work in cement mortar c) Cement conglomerate floor d) Dry brick paving e) Cement plaster of ratios f) Cement pointing g) White washing iv) Material statement for various item of building work	4
7	Sewerage Scheme i) Units of measurement. ii) Method of estimating sewer line and its components.	4

8 Valuation of Property**5**

- i) Introduction definition and purpose of valuation.
- ii) Sinking fund, scrap value, salvages value, market value, book value and years purchase.
- iii) Depreciation of buildings methods of calculating depreciation.
- iv) Methods of valuation.
- v) Calculation of standard rent of buildings on capital %age basis method.

QUANTITY SURVEYING-I (PRACTICAL)

Sr.No	Practical
1	Preparation of rough cost estimates of buildings.
2	Writing specifications.
3	Taking out measurements of a straight wall, T, L, H, F, U, shaped walls and circular walls.
4	Complete estimate of a single storey building.
5	Preparation of Annual repair/ special repair estimates.
6	Working out earthwork of earthen embankment of given design and data.
7	Working out earthwork of road (in plain and hilly areas), and irrigation channel.
8	Complete estimate of arterial roads (bituminous and concrete road).
9	Rate analysis for various items of building work viz cement concrete of ratios, Brick work in cement in foundation and plinth and superstructure, dry brick paving, cement conglomerate, floor , cement plaster of ratios, cement pointing, white washing.
10	Preparation of material statements of various items of building works.
11	Preparation of estimate of newer line including main hole etc.
12	Calculation of present market value of an existing building by standard rent method and depreciation method.

CT 243

CIVIL DRAFTING**Total Contact Hours**

Theory 36

Practical 216

T	P	C
1	6	3

OBJECTIVES:-

Understand the techniques of drawing buildings, roads, irrigation structure and methods of inking and ferro printing.

Sr.No	Contents	Hours
1	Drawing of building components.	10
	i) Instruction for detailed Drawing of Foundations, Lintels arches, stairs, floors, Roofs (flat and sloping), doors, windows, C-Windows, Calculations of spread footing.	
	ii) Instructions on drawing plan and X-section of R.C.C column..	
	iii) Instructions on drawing plan and X-section of R.C.C. slab roof with main and secondary beams.	
	Use of Auto Cad.	09
2	Frame structure buildings.	
	i) Definition of frame structure.	
	ii) Instruction on drawing Raft foundation with steel reinforcement.	
	iii) Instruction for detailed drawing of frame structure showing all components.	
	Use of Auto Cad.	07
3	Drawing of Road structures.	
	i) Instruction for drawing of x-section of Roads.	
	ii) Instructions for drawing of R.C.C. Road culvert 5 ft span.	
	Instructions for detailed drawing of high level two span R.C.C. deck bridge with 25' span each.	
4	Drawing of irrigation structures.	6
	i) Instructions for drawing typical section of Irrigation Channel in cutting and filling.	
	Instruction for drawings of A.P.M. out-let, masonry flume.	
5	Inking and Ferro Printing.	04
	i) Introduction to inking and Ferro printing.	
	ii) Introduction for ink tracing including materials and apparatus used.	
	iii) Sensitizing paper, taking out prints.	

CIVIL DRAFTING (PRACTICAL)

Sr.No	Practical
1	Detailed Drawing of building components as given in theory.
2	Detailed drawing of frame structure building with detail of reinforcement
3	Detailed drawings of road structures.
4	Detailed drawings of Irrigation structures.
5	Ink tracing of a given drawing and taking its prints.
6	Application of Auto-Cad software in Civil Drafting.

Total Contact Hours

Theory 36

Practical 108

T	P	C
1	3	2

OBJECTIVES

To give the trainees basic concept of information technology and use of application software.

DESCRIPTION

Data base Basics and Programming Using C.

Sr.No	Contents	Hours
1	DATABASE BASICS	16
	<ul style="list-style-type: none"> - Introduction to Database Concepts - Database Concepts, Terminology and Usage - Database Design and Table Creation - Formatting A Table - Relationships - Locating and Replacing information - Creating Simple Queries - Creating Calculated Fields - Introducing Forms - Formatting and Creating Forms - Formatting and Creating Reports 	
2	PROGRAMMING USING C	20
	<ul style="list-style-type: none"> - Characteristics of High Level Programming Language - Basic Structure of Program - Creating, Editing and Saving a Source Program - Compiling, Linking and Executing a Program - Variables: character, integer, long integer, floating point, double precision - Input/Output, prints, scans, format Specifier, Field Width Specifier - Operators: Arithmetic, Relational, Logical Operators - Comments - Loops: for loop, while loop, do-while - Decision: if Statement, if-else Statement, else-if, switch Statement, Conditional Operator - Importance of Functions - Simple Functions - Function Passing Arguments and Returning Values - Open File, Read, Write, Append and Close File. 	

COMPUTER-II (PRACTICAL)

Practicals	
Sr.No.	
1	MS-ACCESS
	1) Creation different tables and assign primary key
2	2) Create simple queries using wizard and design view
3	3) Create relationship between tables
4	4) Create simple forms using wizard and design view
5	5) Create reports using wizard and design view
6	6) Use of summary and calculated fields
7	VISUAL BASIC
	1) Create a simple form to add two number using text boxes and buttons
8	2) Create a simple form to perform other arithmetic computations (multiply, divide, subtract).
9	3) Create a form to display table of a given integer
10	4) Create a form which generates series of numbers within given limits using FOR loop
11	5) Create a form which generate series of numbers with in given limits using DO WHILE loop
12	6) Find factorial of N using any loop statement, read value from a text box and write it in another text box
13	7) Define a program to read use salary from a text box and calculate its tax depending upon the bracket in which it falls (using if else if else)
14	8) Create a function which return area of circle of given radius
15	9) Use of form to save/retrieve data from user in text boxes and save it to a MS ACCESS table
16	10) Use text boxes, combo boxes, tree list to save / retrieve data to / from MS ACCESS table
17	11) Use different property sheets to change appearance and format of text item
18	12) Use property sheet modify form background properties

19 C-LANGUAGE

- 1) Write a program which prints a text of 4 lines consisting of characters, integer values and floating point values using “printf” statement
- 2) Writing a program that reads and prints the data using escape sequence (Asking the name, age, height and gender of the student using scanf and printf statement)
- 3)
- 4) Writing a program which uses operators (Calculate the area of triangle, volume of sphere and arrange the resultant values in ascending order)
- 5)
- 6) Writing a program which uses “for” loop statement (generate the multiplication table from 2 to 20)
- 7)
- 8) Writing a program which uses “While” loop and nested “While” loop (use “for” loop and continue the process in “while” loop satisfy this condition)
- 9)
- 10) Finding the factorial of N using “While” loop, read value of N using scanf and print the factorial of various N
- 11)
- 12) Draw a check board and print it using if else statement and extend the program using nested if else
- 13)
- 14) Write a program which uses a “switch” statement and breaks the program if certain condition is observed. Repeat the program with “case” statement
- 15)
- 16) Writing a function which generates factorial of N and calls this function in the “main” program
- 17)
- 18) Writing a program which uses multiple arguments in a function (Develop a user defined function to generate a rectangle. Use the function for passing arguments to draw different sizes of rectangles and squares).

اسلامیات

تدریس مقاصد

عمومی مقاصد بطالعلم یہ جان سکے کہ آیات قرآنی کی روشنی میں مومن کے اوصاف کیا ہیں
قرآن مجید
مخصوصی مقاصد:

- ☆ قرآنی آیات کا ترجمہ بیان کر سکے
- ☆ قرآنی آیات کی تشریح کر سکے
- ☆ قرآنی آیات کی روشنی میں ایک مومن کے اوصاف بیان کر سکے
- ☆ قرآنی آیات میں بیان کردہ مومن کے اوصاف اپنے اندر پیدا کر سکے
احادیث نبویہ
- ☆ عمومی مقصد احادیث کی روشنی میں اسلامی اخلاقی اقدار (انفرادی و اجتماعی) سے آگاہ ہو سکے
مخصوصی مقاصد:
- ☆ احادیث کا ترجمہ بیان کر سکے
- ☆ احادیث کی تشریح کر سکے
- ☆ احادیث کی روشنی میں اسلام کی اخلاقی اقدار کی وضاحت کر سکے
- ☆ ان احادیث کی دی گئی تعلیمات کے مطابق اپنی زندگی گزار سکے
سیرت طیبہ
- ☆ عمومی مقصد: حضور ﷺ کی سیرت طیبہ کے بارے میں جان سکے
مخصوصی مقاصد:
- ☆ حضور ﷺ کی ابتدائی زندگی اختصار کے ساتھ بیان کر سکے
- ☆ حضور ﷺ کی ہجرت کا واقعہ بیان کر سکے
- ☆ حضور ﷺ کی مدنی زندگی اختصار سے بیان کر سکے
- ☆ حضور ﷺ کی بطور معلم خصوصیات بیان کر سکے

- ☆ حضور ﷺ کی بطور سربراہ خاندان بیان کر سکے
اسلامی معاشرہ
- ☆ عمومی مقصد: اسلامی معاشرہ کی خصوصیات سے آگاہی حاصل کر سکے
خصوصی مقاصد:
- ☆ اسلامی معاشرہ کا معنی و مفہوم بیان کر سکے
- ☆ اسلامی معاشرہ کی امتیازی خصوصیات بیان کر سکے
- ☆ اسلامی معاشرہ میں عدل و احسان کی اہمیت بیان کر سکے
- ☆ تبلیغ کے لغوی معنی بیان کر سکے
- ☆ تبلیغ کی اہمیت و ضرورت بیان کر سکے
- ☆ جہد کے لغوی و اصطلاحی معنی بیان کر سکے
- ☆ جہد کی اہمیت بیان کر سکے
- ☆ جہد اور قتل میں فرق بیان کر سکے
- ☆ جہد کی مختلف اقسام بیان کر سکے
- ☆ انظر مسجد کی تعریف کر سکے
- ☆ مسجد کی سابقہ حیثیت کو بحال کرنے کے بارہ میں اقدامات کو بیان کر سکے

اسلامی ریاست

- ☆ عمومی مقاصد: اسلامی ریاست کی خصوصیات بیان کر سکے
خصوصی مقاصد:
- ☆ ریاست کی تعریف بیان کر سکے
- ☆ اسلامی ریاست میں طرز حکومت سے آگاہی حاصل کر سکے
- ☆ اسلامی ریاست کی خصوصیات بیان کر سکے
- ☆ اسلامی ریاست کے اغراض و مقاصد بیان کر سکے
- ☆ اسلامی ریاست کے قیام کیلئے جدوجہد کر سکے

نصاب مطالعہ پاکستان

لی بی سی
1 0 1
کل وقت: 12 گھنٹے

سہ ماہی دوم

حصہ دوم

موضوعات

- | | |
|----------------------------------|---|
| ۱۰ قومی نظریہ | ☆ |
| تحریک پاکستان | ☆ |
| انڈین کانگریس | ☆ |
| مسلم لیگ | ☆ |
| تفسیر نکل | ☆ |
| میشن کونستو | ☆ |
| تحریک خلافت | ☆ |
| سندھ تحریک | ☆ |
| تولوزہ رسمی | ☆ |
| سورہ پورٹ | ☆ |
| قائمہ اعظم کے ۱۹۳۳ نکات | ☆ |
| ملیہ آلہ آپر | ☆ |
| انتخابات 1938 اور اشغال ہندوستان | ☆ |
| قائمہ اول پاکستان | ☆ |

ان غیر مسلم طلباء کے لئے

نی ڈی اے
1 D 1
کل وقت: 20 منٹ

نصاب اختلاقیات
سال دوم

موضوعات

معاشرتی، تعداد نفاذ مسلمان۔ قوم۔ قوی سطح۔ شری سطح۔ صنعتی اربوں کی سطح۔ ضروریات۔ درجہ

- ☆ حقوق و فرائض
- ☆ قوت پرست
- ☆ قوت اربوں
- ☆ نکلن و جذبہ
- ☆ وسیع انگری
- ☆ بے غرضی
- ☆ مسئلہ دوستی
- ☆ سخاوتی شعور
- ☆ پاس آزادی
- ☆ کمال انجمن
- ☆ تعمیرات کو قبول کرنا
- ☆ خود شناسی

حصہ دوم

سزاخاہ پاکستان

تدریس مقاصد

تحریک پاکستان

عمومی مقصد: قیام پاکستان کے اسباب و محرکات کو بیان کر سکتے

خصوصی مقاصد:

☆ قومیت کے مفہوم کو بیان کر سکتے

☆ دو قومی نظریہ کی تعریف و توضیح کر سکتے

☆ دو قومی نظریہ اہمیت بیان کر سکتے

☆ ہندوستانی مسلمانوں کی عمر میں کو بیان کر سکتے

☆ قومی تشخص کو عمل رکھنے کے لئے مسلمان ہند کی مساعی بیان کر سکتے

☆ آزادی ہند اور قیام پاکستان علامہ اقبال اور قائد اعظم کی مساعی بیان کر سکتے

☆ قیام پاکستان سے مستقبل اسلامی مملکت کے قیام کے لئے مسلم عوام کی کوششوں کو بیان کر سکتے

☆ مسلم لیگ کے قیام پاکستان کے لئے جدوجہد بیان کر سکتے

انجیر مسلم طلباء کے لئے

نی بی سی
1 0 1
کل وقت: 20 منٹ

نصاب اختلاقیات
سال دوم

موضوعات

معاشرتی، قدر باخدا، سرمایہ، قوم، قوی سطح، شہری سطح، صنعتی اور لوہائی سطح۔ ضروریات، ورثہ

- | | |
|---------------------|----|
| حقوق و فرائض | ۶۶ |
| قوت برداشت | ۶۷ |
| قوت ارادی | ۶۸ |
| لگن و جذبہ | ۶۹ |
| وسیع انگیزی | ۷۰ |
| بے غرضی | ۷۱ |
| مسئلہ دوستی | ۷۲ |
| جفاقتی شعور | ۷۳ |
| پاس آزادی | ۷۴ |
| کمال انجیری | ۷۵ |
| تجربات کو قبول کرنا | ۷۶ |
| شردشماہی | ۷۷ |

نسب اخلاقیات

سال ۲۰۰۳

تدریس مقاصد

عمومی مقاصد:

طالب علم: اخلاقیات کی اہمیت اور ضرورت سے سمجھ ہو سکے اور بیان کر سکے

تصویری مقاصد: طالب علم اس قتل ہو کہ

موضوعات کا مطلب بیان کر سکے

☆

عملی زندگی سے مثالوں کی نشاندہی کر سکے

☆

ہونے کی شخصیت اور حاشیے پر موضوعات کے متعلق مثبت اثرات پیدا کرنے کے طریقے بیان کر سکے

☆

اعلیٰ اخلاقی قدر میں سے

☆

توبت برداشت۔ قوت ارادی۔ مکن جذبہ۔ وسیع انگری۔ بے غرض۔ انسانی دوستی خالص۔ شہور۔ پس آزادی۔

کمال اگلی اور نوا شہاسی کی اہمیت بیان کر سکے

اخلاقیات سے منصف اور قومی خدمت، بہتر طور پر انجام دے سکے

☆

L&MS 223**SURVEY CAMP****T P C**
0 6 2

Sr.No	Contents	Hours
1	Survey Camp on the surveying subjects studied in 2 nd year.	216

MIN 313

COAL MINING**Total Contact Hours**

Theory 72	T	P	C
Practical 108	2	3	3

OBJECTIVES

The course has been designed to provide understanding to mine technicians to apply coal mining methods in different geological environments of coal seams and to take responsibilities of coal excavation.

DESCRIPTION

Coal, Coal Mining Methods, Development of Coal Seam, Long wall Mining Methods, Room & Pillar Mining Methods, Surface Coal Mining Methods, Stripping, Oxidation of Coal and Spontaneous combustion, Mine Lighting in Mine Field, Road Ways, Working Face Visibility and Lighting, URLs and Combustion including combustion of peat, Fuel introduction, classification of fuels and properties of each type of coal and cackling index, Carbonization, Proximate and Ultimate Analysis of Coal, Mine Water Introduction, Source, Water Table, Means of de-watering.

Sr.No	Contents	Hours
1	Coal i) Definition. ii) Mode of Formation. iii) Classification of Coal by Rank. iv) Selection of Coal for Commercial use. v) Impurities associated with Coal and their effects.	06
2	Coal Mining Methods i) Types of underground Coal Mining Methods. ii) Factors to be considered in selecting underground vs surface mining method. iii) Room and Pillar Method – Introduction & Fields of application. iv) Longwall Method of Mining - Introduction & Fields of applications.	06
3	Development of Coal Seam i) Introduction. ii) Conditions governing the Development of Coal Seams. iii) Development of Coal Seam Based on Entry-System. iv) Factors Effecting Size, Direction & Location of entries.	08
4	Longwall Mining Method i) Mechanized Longwall Advancing Mining Method and its applications. ii) Development of Flat & Inclined Seams. iii) Mechanized Longwall Retreating Mining Methods and its applications. iv) Manually Worked Longwall Mining Method. Application & Development	08
5	Room & Pillar Mining Methods. i) Room and Pillar Mining Method. ii) Development of Rooms & Pillars by different Methods. iii) Advantages and dis-advantages of Room & Pillar System. iv) De-pillaring Methods and precaution to be adopted..	08
6	Surface Mining Methods for Coal. i) Open Cast and Open Pit Mining Methods. Application, Cycle of operation with shovel, Drag-Line, Bucket-Excavators.	08
7	Oxidation of Coal and spontaneous Combustion. i) Definitions of Oxidation and Spontaneous Combustion. ii) Situation Liable for Spontaneous Combustion. iii) Detection of Spontaneous Combustion. iv) Prevention & precautions. v) How to built an Air Tight Packing.	06

8	Mine Lighting.	06
	i) Definitions of Relative Terms.	
	ii) Lamps used for Lighting.	
	iii) Lamp Rooms, Sketch, purpose. Advantage & Disadvantages.	
	iv) Maintenance of Safety Lamps.	
	v) Mine Lighting underground roadways and coal faces.	
9	Fuel	04
	i) Definitions, Classification (Solid, Liquids and Gases).	
	ii) Characteristics of an Ideal Fuel.	
	iii) Definition & Combustion of peat.	
10	Carbonization	02
	i) Definition.	
	ii) Types of Carbonization.	
	Analysis of Coal.	02
11	i) Introduction.	
	ii) Proximate Analysis.	
	iii) Ultimate Analysis.	
12	Mine Water	08
	i) Sources of Mine Water in the mine.	
	ii) Water Table - Definition.	
	iii) Means of De-watering.	
	a) Drain Tunnels.	
	b) Pumping.	

COAL MINING PRACTICAL)

Sr.No	Practical
1	i) To study coal samples. ii) To study impurities in coal in laboratory.
2	i) Visit of coal mine. ii) To study mining methods used in mines and to make their sketches.
3	i) To study Room and Pillar mining method laboratory model. ii) To study various parts of machinery used in Room and Pillar Mining method.
4	i) To study model of long wall advancing / retreating mining methods.
5	i) To study lighting system in coal mines and to study different types of safety lamps. ii) Requirement of illumination of light
6	i) Study of properties of coal in laboratory, Ash content, Volatile matters, sulphur contents, moisture contents, GCV.
7	
8	i) Study tour to water bearing coal mines and preventive measures against mine water. ii) Study of pumps used in mines for water drainage.

Total Contact Hours	T	P	C
Theory 72	2	6	4
Practical 216			

OBJECTIVES:-

To impart the knowledge of field of astronomy applicable to surveying. Measurement of latitude and longitude of a place at true Azimuth of a line by taking observation on sun and pole star. Concept of trilateration and its adjustment and computation of length of side . Preparation of Topographic maps and general field method of topographic surveying. Concept of root surveying for different purposes and various types of root curves and their laying off. Construction surveying required for different civil engineering projects also concepts of municipal and sub division survey.

Sr.No	Contents	Hours
1	Principles of Field: Astronomy; Celestial sphere, Observer's position on the Earth, Latitude and Longitude, Right-ascension system of spherical co-ordinates, Hour Angle Equator system of co-ordinates, Equator systems comparison, Horizon system of spherical co-ordinates, Astronomical Tables, Relation between Latitude, Altitude and Declination, Horizon and Hour Angle Equator Systems Combined, Solution of PZS Triangle, Azimuth at Elongation, Different Times and their conversion, Relation between Longitude and time.	12
2	Azimuth, Latitude and Longitude. Measurement of Angles, Observations on the sun, Correction for semi diameter, Procedure of Sighting on Sun, Parallax Correction, Refraction Correction, Combined Correction, Declination of the sun, Latitude by observation on sun at Noon, Azimuth of line by Direct Solar Observation, Longitude by observation on sun at noon, Polaris, Latitude by Observation on Polaris at Culmination, Azimuth of a line by Observation on Polaris at Elongation.	12
3	Trilateration. Meaning and Explanation of Trilateration, Reduction of Slope Distance by vertical angles, Reduction of Slope Distance by Station Elevations Adjustment of Trilateration, Computation of lengths of sides.	04
4	Topographic Maps. General, Representation of Relief, Contours and Contour lines, Characteristics of contour lines, contour Interval Contour map construction, Interpolation, Tests for Accuracy, Choice of Map Scale, Choice of Contour interval, Cross sections and profiles from contour maps, Earthwork for grading areas, Earthwork for Roadway, Reservoir areas and volumes, Route Location	08

5	Topographic Surveying. General Planning the survey, General Field Methods, Horizontal control, vertical control, Location of Details.	06
6	Route Surveying. General Procedure, Reconnaissance, Preliminary Survey, Transit Tape Level Method, Transit Stadia method, Plane Table method, Preliminary Profile and map, Location Survey;, paper Location, Location Survey, Field Location and office work, Survey for Highway, Survey for Railway, Survey for canal, Survey for Power-transmission Line, Application of Photogrammetry in Route Location.	08
7	Route Curves. Circular curves, Sharpness of curvature, Geometry of the Circular curves, Curve Formulas, Laying out of curve by deflection Angles, Laying out of the curve by Transit, Set ups on the curve, Laying out of the curve by intersection, Laying out of curve by Tape alone, String lining of curves, Spiral curves, Super Elevation, Railway Spirals, Highway Spirals.	08
8	Construction Surveys. General, Alinement, Grade, Precision, Establishing Points by Intersection, Highways Streets, Railways, Sewer and Pipe Lines, Canals, Tunnels, Bridge sites, Bridges culverts, Building sites, Buildings, Dams.	06
9	Municipal and Subdivision Surveys. Control monuments and maps, Steps in a city Survey, Triangulation for city Survey, Traverse for control of city Surveys, Levelling for city Surveys, Base Maps, Topographic Map of city, City property Survey, Underground Map.	08

SURVEYING – III (PRACTICAL)

Sr.NO	PRACTICALS
1	Observation on sun, parallax correction, refraction correction
2	Latitude of a place by observation on sun at noon.
3	Azimuth of a line by direct solar observation.
4	Latitude of a place by observation on Polaris at culmination.
5	Azimuth of a line by observation on Polaris at elongation.
6	Survey for high ways, railways, canal and power transmission lines.
7	Laying out a circular curve by deflection angle with transit and by setting the transit on the curve.
8	Laying out of curve by tape alone.

Total Contact Hours

Theory 72

T P C

Practical 216

2 6 4**OBJECTIVES:-**

Concepts of photogrammetry, Mosaic , stereoscopy and parallax stereoscopic plotting.

Concept of G.P.S. system.

Concept of hydrographic survey.

Horizontal and vertical control.

Location and making of soundings

Determination of stream slopes and surface currents.

Measurement of discharge of channels and cross section

Different instruments for measuring current velocity.

Concept of Mine Surveying use of Mine Transit, with ordinary telescope and adjustment of horizontal and vertical angles measured with Auxiliary telescope.

Connecting underground and surface surveys through adit or incline and vertical shaft.

To give a line for connection and how to mark a lease boundary underground as well as on the surface with coordinates to determine the dip and strike of the Ore body with three bore holes and dip and strike and fault and for structural problems/solutions.

Sr.No	Contents	Hours
1	Photogrammetry. Scope, Aerial Camera, Types of aerial photographs, Photographic scale, Relief Displacement, Photograph overlap, Ground control for photogrammetry, Mosaic, Stereoscopy and Parallax, Stereoscopic Plotting Instruments, Advantages and Disadvantages of Photogrammetric mapping, Orthophotos, Digitized Stereoscopic model.	16
2	GPS System.	14
3	Global Positioning System and its techniques. Hydrographic Surveying. General, Horizontal control, vertical control, short details, establishing Datum, Location of soundings, Range Lines and Angle read from shore, Range Line and Time Intervals, Intersecting Range Lines, Two Angles read from shore, Transit and stadia, Distance along a wire stretched between stations, Two Angles read from Boat, Sextant, Adjustment of the sextant, Measuring angle with the sextant, Equipment used for making soundings, Making the soundings, Reducing soundings to Datum, Plotting the soundings, Determination of stream slope, Measurement of surface currents, Capacity of Existing lakes or reservoirs, Factors controlling Discharge, Water stage Registers, staff gauges, chain gauge, Recording Tide and River Gauges, Hook gage, Measuring the cross section.	16
4	Instruments for measuring current velocity, Floats, Current meters, Velocity measurements. Mine Surveying. Position of stations, Illumination of targets, leveling staff and cross hairs of instruments, Measurement of Distances, Mining Transit, Use of auxiliary telescope, Connecting surface and underground surveys through I) Adit or Incline ii) Two vertical Shafts iii) One vertical shaft, Transfer of level from surface to underground through an Adit or incline and a vertical shaft. To give a line for connection,. To mark a lease boundary underground from a point, To demark the lease boundary on the surface with co-ordinates, To determine the Dip and strike of ore body with the help of three Bore Holes,	20
5	Dip and strike structural problem, Fault structural problems Plans Working plan, general plan, geological and base plan	06

SURVEYING – IV (PRACTICAL)

Sr.No	Practical
1	Study of stereoscopic and photography.
2	Ground control for photogrammetry.
3	Global positioning of a point with G.P.S. system.
4	Hydrographic surveying for making sounding.
5	Marking lease boundary on surface with co-ordinates.
6	Making lease boundary underground from a point.
7	Dip and strike measurement with Brunton compass.

CT 322

QUANTITY SURVEYING-II (PRACTICAL)

T	P	C
0	6	2

Total Contact Hours

Theory 0

Practical 216

OBJECTIVES:-

Understand the estimating of multi-storied , R.C.C. Bridge and steel truss including bar scheduling.

Sr.No	Practicals
1	Complete estimate of a small two storied R.C.C. frame structure building (of given drawing) including bar scheduling and abstract of cost.
2	Complete estimate of R.C.C. bridge (high level multispans bridge) including bar scheduling and abstract of cost.
3	Complete estimate of a steel truss (20 m, span) including its abstract of cost.
4	Complete estimate of R.C.C. under ground water tank and overhead water tank.
5	Use of Lotus in quantity surveying.
	NOTE:-The above exercises must span over a period of 192 hours and the number of assignment (projects) should match with this duration.

Total Contact Hours

Theory 72

Practical 108

T	P	C
2	3	3

Sr.No	Contents	Hours
1	A. 1-Working with the Interface i. Get started ii. Introduction to the AutoCAD graphic windows iii. The command window iv. Drop down menu B. Tools Bar i. Tools bar layout ii. Calling up and arraying tools bars iii. Custom Tool bar C. Drawing Set Up i. Drawing units ii. Drawing limits iv. Drawing grid iv. Assign color v. Drawing with grid and snap vi. Zoom vii. Zoom All	08
2	A. Addition Text to drawing i. Using line text ii. Using multimedia text iii. Working with text style iv. Substituting fonts v. Finding and replacing text B. Creating Dimensions i. Dimensioning concepts ii. Creating dimension iii. Editing dimensions iv. Creating leader and annotation	08
3	A. Using coordinate system I .Working with Cartesian and polar coordinate system ii. Using direct distance entry shifting and rotating the coordinate systems iii. Displaying the UCS icon iv. Working with UCS in view port v. Saving and storing a named UCS	04
4	A. Creating Objects i. Drawing line objects ii. Drawing Poly lines iii. Drawing multiline iv. Drawing Polygons v. Sketching free hand vi. Drawing circles vii. Drawing Arcs vii. Drawing Ellipses viii. Drawing elliptical Arcs ix. Drawing isometric circle x. Drawing a donut	08

5	A. Creating Point Objects	04
	i. Set point styles and size	
	ii. Creating solid filled areas	
	iii. Creating triangular solid filled area.	
	iv. Create a point marker	
6	A. Creating Regions	04
	i. Creating a region by selecting objects	
	ii. Create region using boundaries	
	iii. .Creating Composite Solids	
	B. Hatching Area	
	i. Creating hatching	
	ii. Define hatch boundary	
	iii. Using Hatch Pattern	
7	A. Specifying measurements and divisions	06
	i. Using command measurement	
	ii. Using command division	
	iii. Specify measurement interval on objects	
	iv. Divide objects into segments	
8	A. Calculating areas	
	i. calculating a define area	
	ii. Adding and subtracting areas	
	iii. Controlling the drawing display by using zoom & pan	
	iv. Zooming and panning in real time	
9	Using aerial views	
	Using named views	
	Using titled view port	10
	Turning Visual elements on and off	
	Selecting Objects	
	Using groups	
	Editing object properties by using the object property tool bar	
	Layers, Color, line types, line weight, plot style	
	Copying Objects	
	Mirroring objects	
	Arraying objects	
	Rotating objects	
10	Aligning objects	
	Align two objects	
	Resizing objects	10
	Exploding objects	
	Editing Splines	
	Chamfering objects	
	Filleting objects	
	Creating a layout to plot	
	Saving and naming a page up	
	Importing a named page setup	
	Moving and copying a layout	
11	3D view	
	Creating object in 3D	10
	Rotating object in 3D	
	Editing faces of 3D Solids	
	Rendering	
	Use of different soft ware in Surveying which deals with data transfer from total station to computer	
	Use of Auto Cad for map development i.e. preparation of topo sheet, area marking in topo sheet, text, edit, print, scale.	

COMPUTER – III (PRACTICAL)

Sr.No	
1	PRACTICAL: LINE COMMAND, CARTESIAN AND POLAR COORDINATE, OFFSET, FILLET, EXTENDING LINES, TRIMMING LINE
2	PRACTICAL: AREA, ARRAY, BATCH, BLOCK, CIRCLE, COLOR, COPY COMMANDS
3	PRACTICAL: STYLE, TEXT, DDEDIT, DIMTEDIT, DDIM, DIM, DIMALIGNED, DIMANGULAR, DIMBASELINE, DIMCENTER, DIMCONTINUE, DIMDIAMETER, DIMLINEAR, DIMORDINATES, DIMOVERRDE, DIMRADIOUS, DIMSTYLE, DIMTEDIT, TEXTSCR,
4	MTEXT,
5	PRACTICAL: ABOUT, ALIGN, APERTURE, BASE, BLIPMODE, BLOCK, BOUNDRY, BOX, BREAK, CAL,
6	PRACTICAL: CHANGE, CHPROP, DBLIST, DELAY, DIST, DDPTYPE, DDVPOINT, DONUT, DRAGMODE, DSETTING
7	PRACTICAL::DSVIEWER, DVIEW, FILL, ELLIPSE, EXPLODE, EXTEND, EXTRUDE, FIND, HIDE, HYPERLINK, INSERT, INSERT OBJECT, LEADER, LENGTHEN, LIGHT
8	PRACTICAL: LINE TYPE, LIST, LSEEDIT, LTSCALE, LWEIGHT, MASSPROP, MATCHPROP, MATLAIB, MEASURE, MLEDIT, MLINE, MSTYLE, MOVE, MSPACE, OOPS, OPTION, ORTHO, OSNAP, PAGESETUP
9	PRACTICAL: PEDIT, PLOT, PLOTSTYLE, POINT, PROPERTIES, PSFILL, PSPACE, PURGE, RAY, REDEFINE,
10	PRACTICAL: REDO, REDRAW, REGEN, REGENALL, PEDIT, REGENOUT, RENAME, RENDER, RENDSCR, REVOLVE,
11	PRACTICAL:REVSURF, RMAT, ROTATE3D, RPREF, SAVE, SAVEAS, SAVEING, SCALE, SCENE
12	PRACTICAL: SHADEMODE, SHOWMAT, SKETCH, SNAP
	PRACTICAL: SOLIDEDIT, SOLPROF, SOLVIEW, STATS, STATUS, STRETCH, STYLE, STYLEMANAGER, SUBTRACT, TABSURF
	PRACTICAL: TEXTSCR, TIME, TRACE, TRANSPARENCY, TREESTAT, UNDO, UNION, VPOINT, VPORTS, WBLOCK, WEDGE, XLINE, XPLODE, ZOOM,
	PREPARATION OF MAPING, PREPARATION OF TOPO SHEET, AREA MARKING IN TOPO SHEET, TEXT, EDIT, PRINT, SCALE.

MIN 312
LEGISLATIONS**MINE MANAGEMENT, ECONOMICS AND****Total Contact Hours**

Theory 72

Practical 0

T	P	C
2	0	2

OBJECTIVES

To acquaint students with basic principles of Mine Economics and Mine Management. To develop leadership abilities for effective supervision. To develop their understanding of Mine organization. To develop and understanding of human factors in industry. To develop social skills and understanding of psychology in dealing with industrial and labor problems.

Sr.No	Contents	Hours
1	Industrial psychology, leadership and motivation	5
2	Industrial accidents, fatigues and boredom	4
3	Scientific management	5
4	Quality and quantity of control	4
5	Fundamentals of economics	4
6	Marketing dynamics	5
7	Factors of production	4
8	Ore reserves	4
9	Economic system, economy of Pakistan	4
10	Financial Transaction	4
11	Definitions related to Mine Act used in Mining Technology	5
12	Mine Inspectors' powers, functions	4
13	Mining Boards, Committees, powers, functions	4
14	Mining operations and Mining Officials	4
15	Rules, regulations and bye-laws	4
16	Certificates of competency, permits and authorizations	4
17	Coal mining rules and regulations, metalliferous mining rules and regulations, bye-laws and compensations act	4

MIN 372

RESCUE AND SAFETY

Total Contact Hours	T	P	C
Theory 36	1	3	2
Practical 108			

OBJECTIVES

To give the introduction to the students about safety measure and safety equipment. How to take rescue operation, What are the diseases in coal mines and their preventions, Tips for first aid.

DESCRIPTION

Rescue & Recovery, Mine Explosions: Fire Damp Explosions, Coal Dust Explosions, Mine Fires, Resuscitation & First Aid, Mine Accidents, Occupational Diseases, their causes and prevention.

Sr.No	Contents	Hours
1	Mine Fires	4
	<ol style="list-style-type: none"> 1. The Fire Triangle (Fuel, Heat and Oxygen) 2. Categories of Fuels (Solid, Liquid and Gases) 3. Principles of Fire – extinguishing (Removal of Fuel, Heat & Oxygen) 4. Classes of Fires (Classes A, B, C, D and Electric Hazards) 5. Methods of extinguishing fires Water, Sand, Foam, Carbon dioxide, Vaporization of Liquids, Dry Chemical Powders. 6. Stopping. Temporary and Permanent Stopping. 7. Precautions to re-open a sealed area. 	
2	Mine Explosions	9
	<ol style="list-style-type: none"> 1. Fire Damp Explosions. <ol style="list-style-type: none"> i) Factors essentials to cause a fire damp explosions. ii) Limits of inflammability. iii) Causes of ignition of fire damp in mines. iv) Precautions against a fire damp explosion. 2. Coal Dust Explosions. <ol style="list-style-type: none"> i) Factors essentials to cause a coal dust explosion. ii) Limits of inflammability. iii) Causes of ignition of coal dust explosions. iv) Precautions against a coal dust explosions. v) Mine Dust Sampling 3. Explosions in Compressed Air Pipes. 	
3.	Mine Accidents	3
	<ol style="list-style-type: none"> 1. Classification of Accidents. <ol style="list-style-type: none"> a) Falls of roof and sides b) Haulage and winding. c) Explosive and shot firing. d) Electrical Hazards e) Inundation in Mines. f) Suffocation. g) Methods of working. 2. Causes, Prevention and Control. 	

	<p>Rescue & Recovery</p> <p>4. 1. Definition. 2. The Mine Rescue Organization. 3. The Mine Rescue Team – Rules & Procedure for pre and after entering an irrespirable atmosphere. 4. Types of Breathing Apparatus – Factors to be considered 5. Short-Distance Tube apparatus- The Spirelmo, Smoke Helmet. 6. Escape Apparatuses: Open circuit type Close circuit type 7. Self contained breathing apparatus.</p> <p>a) Compressed air types. b) Compressed oxygen type.</p>	7
5.	<p>First Aid to the Injured</p> <p>1. Definition 2. First Aid Equipments 3. General Principles of First Aid. 4. Cardio-Pulmonary resuscitation. 5. Physiological aspect of Resuscitation 6. ABC of Resuscitation 7. Expire air Resuscitation 8. Manual Resuscitation 9. Basic life flow chart 10. Hemorrhage – Fracture, Burns 11. How to recover an unconscious person from an irrespirable atmosphere. 12. Reviving apparatus (Pulmotor)</p>	10
6.	<p>Occupational diseases, their causes and prevention.</p> <p>1. Pneumoconiosis. 2. Nystagmus. 3. Dermatitis. 4. Heat Stokes. 5. Gas Poisoning. 6. Loss of Hearing Acuity. 7. Tuberculosis Verucosa, and 8. Tunnel Workers Anemia.</p>	3

RESCUE AND SAFETY (PRACTICAL)

Sr.No	Practical
1	Construction of dust sampler
2	Measurement of quantity of dust particles with dust sampler
3	Introduction and layout of Rescue Station
4	Introduction to Rescue Apparatuses
5	Mine Safety Lamps and charging station
6	Construction of self contained breathing apparatus BG-174, principle
7	Exercise with BG-174
8	Construction of smoke helmet
9	Construction of gas mask
10	Construction of CO self rescuer and exercise with CO-self rescuer
11	Construction and operation of pulmator
12	Rescue operation with different types of Equipments
13	Artificial resuscitation
14	First aid to :-
	a) Gas effected person
	b) Burnt person
	c) Electric shock effected person
	d) Limb fractured person
	e) Drowned person
15	Environment sampling behind the fire stopping and calculation of garaham's ratio

MIN 302

EXPLOSIVES AND BLASTING**Total Contact Hours**

	T	P	C
Theory 72	2	0	2
Practical 0			

OBJECTIVES

At the end of the course the student will be to know different types of explosives, their properties and applications. The student would also acquire the skill in fostering the safe blasting practices with the desired end result being accident free, productive blasting.

Sr.No	Contents	Hours
1	Explosive Products	16
	<ul style="list-style-type: none"> i. History of explosives ii. Explosive and blasting agent iii. Low and high explosive iv. Oxygen balance v. Various explosives and blasting agents <ul style="list-style-type: none"> a. Nitroglycerine based explosives: dynamites b. ANFO/Dry blasting agents c. Agricultural grade prills d. Blasting grade prills e. Slurries f. Water gels g. Emulsions vi. Permissible explosives 	
2	Explosive properties	14
	<ul style="list-style-type: none"> i. Strength/energy output ii. Velocity of detonation (VOD) iii. Density iv. Water resistance v. Post blast fumes vi. Detonation pressure & blast hole pressure vii. Sensitivity and sensitiveness 	
3	Initiation system	14
	<ul style="list-style-type: none"> i. Introduction ii. Non-electric initiation systems iii. Cap and fuse iv. Nonel v. Detonating cord vi. Electric initiation system vii. Field application 	
4	Environmental effects of blasting	14
	<ul style="list-style-type: none"> i. Various environmental effects ii. Air blasts iii. Fly rock iv. Ground vibrations v. Prescribed vibration levels & measurement techniques vi. Scaled distance equation vii. Remedial measures for ground vibrations and air blasts 	
5	Blasting safety	14
	<ul style="list-style-type: none"> i. Explosive storage ii. Handling of explosive material iii. Post shot safety iv. Disposing of misfires v. Disposal of explosive material 	

اسلامیات / مطالعہ پاکستان

- نصاب (اسلام سوئٹز)
حصہ اول اسلامیات
حصہ دوم مطالعہ پاکستان
موضوعات
- 1- قرآن مجید
سورۃ الفاتحہ۔ آیتہ الکرسی۔ سورۃ البقرۃ کی تشریح آیات از اسرار الہامیہ سے آغاز اور سورۃ تعلق مع ترجمہ و تفسیر
- 2- بنی منتخب اہل بیت اور تربیت تشریح
- 3- بنی اسلام علی خمس شہادت لہ الا لہ الا لہم اقلیم ائصالونہ ویشانہ انزکوة و حج لیلین و صوم رمضان لہ ذین انصبحتہ لہ منشاء مومن لہ المؤمن علی المؤمن سنت خصالی یعود ما دامرض و تشہدہ لائمات و یحبہ لانا دعا
- 4- لیسیم علیہ انقلبہ و لیشتہ انا عظمس و فصیحطہ لانا غاب او شہدہ لانا نحن سن خاتک لانا یفخس الحننہ قاطع ان اللہ حرم علیکم عقوق لمہات و اضاعتہ اعمال لیسر اولاتعسر اولاتنفرا دلق طعم الایمان من مرضس باللہ و بالاسلام دین بمعہ دنیا لوصف الذکر لہ الا لہم حقوق و قرآن
- 5- حسن تعلیم بطور فرس۔ والدین اور کولار کے حقوق و فرائض۔ مسد کے حقوق اسلام کی اخلاقی اقدار
- 6- غم و غمزد۔ ایمانے عمد۔ ہنوت۔ ائمہ و قرین

نی پنا سی
1 0 1
کس وقت: 20 بجے

سال سوئم
حصہ اول اسلامیات

تدریس مقاصد

قرآن حکیم

عمومی مقصد: منتخب سورتوں اور آیات کی روشنی میں اسلام کے بنیادی مقاصد اور عبادت بیان کر کے
خصوصی مقاصد: طالب علم اس قتل ہو جائے گا کہ
سورۃ الفاتحہ: آیت الکرسی۔ سورۃ بقرۃ کی آخری آیات از امن الرسول سے اور سورۃ اخلاق کا ترجمہ و تشریح کر کے
طالب علم درج ذیل کا مفہوم بیان کر سکے

- ☆ رب العالمین صرف اللہ تعالیٰ ہے
- ☆ اللہ رحم کرنے والا ہے
- ☆ قیامت کے دن پوشاکی اللہ کی ہوگی
- ☆ عبادت اور استعانت کا حقدار صرف اللہ ہے
- ☆ طالب علم درج ذیل کا مفہوم بیان کر سکے
- ☆ اللہ پاک ہر عیب سے پاک ہے
- ☆ اللہ کے اسمائے حسنہ اور قیوم ہیں
- ☆ تعلیم انبیاء پر ایمان لانا ضروری ہے
- ☆ رسول ملا کہ کتب سلویہ پر ایمان لانا فرض ہے
- ☆ اطاعت حقیقی صرف اللہ کے لیے ہے
- ☆ اسلامی احکامات پر عمل کرنا انسانی رسالہ میں ہے
- ☆ کفر کو اللہ کی مدد کے بغیر کھلت نہیں دی جاسکتی
- ☆ اللہ ایک ہے
- ☆ اللہ کسی کا محتاج نہیں نہ اس کا کوئی شریک ہے
- ☆ منتخب احادیث
- ☆ عمومی مقصد: احادیث کی روشنی میں اسلامی تعلیمات پر عمل پیرا ہو سکے
- ☆ خصوصی مقصد:
- ☆ احادیث کا ترجمہ بیان کر سکے

- ۱۶۰ احادیث کی تشریح کر سکے
- ۱۶۱ معاشرتی اور انفرادی زندگی میں احادیث سے راہنمائی حاصل کر سکے
- حقوق و فرائض**
- عمومی مقصد: اسلامی معاشرے کا ایک اچھا فرد بن سکے
- خصوصی مقاصد:
- ۱۶۲ والدین کے حقوق و فرائض بیان کر سکے
- ۱۶۳ بھائیوں کے حقوق بیان کر سکے
- ۱۶۴ اسلام میں حقوق و فرائض کی صورت میں اپنے اندر خدمتِ مطلق کا جذبہ پیدا کر سکے
- اسلامی اقدار
- عمومی مقصد: طالب علم بہن سکے گا کہ تعلیم کا مقصد حسنِ اخلاق سے متصف ہوگا ہے
- خصوصی مقاصد
- ۱۶۵ اخلاق کے معنی و مفہوم کو بیان کر سکے
- ۱۶۶ اسلام میں حسنِ اخلاق کی اہمیت بیان کر سکے
- ۱۶۷ قرآن و سنت کی روشنی میں صبر و استقامت کی اہمیت بیان کر سکے
- ۱۶۸ اسلام میں غفور و رحیم کی اہمیت بیان کر سکے
- ۱۶۹ ایقانے عہد کی اہمیت بیان کر سکے
- ۱۷۰ اثنوت کے معنی و مفہوم کو بیان کر سکے
- ۱۷۱ اثنوتِ اسلامی کی اہمیت بیان کر سکے
- ۱۷۲ اسلام کی اعلیٰ قدر کو اپنا کر مثالی معاشرہ پیدا کر سکے

ٹی پی سی
1 0 1
کل وقت: 20 گھنٹے

GEN 3II

نصاب (سہل سوئم)
مظاہرہ پاکستان
حصہ دوم

موضوعات

- ☆ قیام پاکستان
- ☆ پونڈری کمیشن
- ☆ ریڈ کلف ایوارڈ
- ☆ تقسیم بنگلہ و گلگت
- ☆ تقسیم پنجاب
- ☆ مسئلہ مہاجرین
- ☆ ریاست کالہاٹی
- ☆ ریاست جموں و کشمیر
- ☆ نسری پالی کا تنازعہ
- ☆ قرار و اہم مقاصد
- ☆ علماء کے بائیس نکات
- ☆ 1956-1962 اور 1973 کے دستاویز کی اسلامی دفعات
- ☆ پاکستان کا محل وقوع اور اس کی جغرافیائی اہمیت
- ☆ قدرتی وسائل (تیل، گیس، کوئلہ)

مطالعہ پاکستان (حصہ دوم)
قیام پاکستان

تدریس مقاصد

عمومی مقاصد: قیام پاکستان کے بعد درپیش مسائل سے آگاہی حاصل کرے اور بیان کرے
خصوصی مقصد:

- ☆ باؤنڈری کمیشن تشکیل اور اس کے فرائض بیان کر سکے
- ☆ ریڈ کلف اور اس کے ایوارڈ کے بارے میں بیان کر سکے
- ☆ بنگلہ اور گلگت کی تقسیم کی وجوہات بیان کر سکے
- ☆ پنجاب کی تقسیم کی تفصیل بیان کر سکے
- ☆ مہاجرین کی آمد سے جو مسائل پیدا ہوئے انہیں بیان کر سکے
- ☆ ریاستوں کے الحاق کے بارے میں تفصیل بیان کر سکے
- ☆ ریاست جموں کشمیر کے بارے میں بیان کر سکے
- ☆ سرحدی پٹی کے تنازعہ کو بیان کر سکے
- ☆ قرار داد مقاصد کی تفصیلات بیان کر سکے
- ☆ 22 علماء کے متفقہ اسلامی نکتہ بیان کر سکے
- ☆ قیام پاکستان کے بعد نفاذ اسلام کی کوششوں کو بیان کر سکے
- ☆ پاکستان کے محل وقوع اور اس کی جغرافیائی اہمیت بیان کر سکے
- ☆ پاکستان میں قدرتی وسائل (تیل- گیس- کوئلہ) کے بارے میں بیان کر سکے

(غیر مسلم طلباء کے لئے)

ٹی پی سی
1 0 1
کل وقت: 20

Gen 311

نصاب اختلاقیات

سال سوئم

موضوعات

☆ احساس ذمہ داری

☆ مثبت ذہن

☆ عدل و انصاف

☆ قومی خدمت کا جذبہ

☆ ذکر و نظر کی پاکیزگی

☆ احترام آدمیت

☆ شائستگی

☆ عضو درگزر

☆ بردباری

☆ خود انحصاری

☆ اثر و نفوذ

☆ جامعیت

☆ اپنی ذات کی معرفت (بذریعہ ہم عمر طلباء۔ اساتذہ۔ اہم شخصیات لواریہ)

