SUBJECT- STRUCTURAL MECHANICS **SUBJECT CODE-TH1**

SEM-3RD **BRANCH - CIVIL**

SUBJECT-SM	GANDHI INSTITUTE OF ADVANCE COMPUTER & RESEARCH	3RD SEM	FACULTY NAME-M.ANKITA
MODULE NO	**TOPICS TO BE COVERED**	**NO OF PERIODS REQUIRED**	**TENTATIVE DATE FOR COMPLETION**
1	**Review Of Basic Concepts**	**1**	
1.1	Basic Principle of Mechanics: Force, Moment, support conditions, Conditions of equilibrium, C.G & MI, Free body diagram	**3**	
1.2	Review of CG and MI of different sections	**1**	
2	**Simple And Complex Stress, Strain**	**1**	
2.1	Simple Stresses and Strains Introduction to stresses and strains: Mechanical properties of materials – Rigidity, Elasticity, Plasticity, Compressibility, Hardness, Toughness, Stiffness, Brittleness, Ductility, Malleability, Creep, Fatigue, Tenacity, Durability, Types of stresses - Tensile, Compressive and Shear stresses, Types of strains - Tensile, Compressive and Shear strains, Complimentary shear stress - Diagonal tensile / compressive Stresses due to shear, Elongation and Contraction, Longitudinal and Lateral strains, Poisson's Ratio, Volumetric strain, computation of stress, strain, Poisson's ratio, change in dimensions and volume etc, Hooke's law - Elastic Constants, Derivation of relationship between the elastic constants.	**15**	
2.2	Application of simple stress and strain in engineering field: Behaviour of ductile and brittle materials under direct loads, Stress Strain curve of a ductile material, Limit of proportionality, Elastic limit, Yield stress, Ultimate stress, Breaking stress, Percentage elongation, Percentage reduction in area, Significance of percentage elongation and reduction in area of cross section, Deformation of prismatic bars due to uni axial load, Deformation of prismatic bars due to its self weight.	**8**	
2.3	Principal stresses and strains: Occurrence of normal and tangential stresses, Concept of Principal stress and Principal Planes, major and minor principal stresses and their orientations, Mohr's Circle and its application to solve problems of complex stresses	**4**	
3	**Stresses In Beams and Shafts**	**1**	
3.1	Stresses in beams due to bending: Bending stress in beams – Theory of simple bending – Assumptions – Moment of resistance –	**4**	

	Equation for Flexure– Flexural stress distribution – Curvature of beam – Position of N.A. and Centroidal Axis – Flexural rigidity – Significance of Section modulus		
3.2	Shear stresses in beams: Shear stress distribution in beams of rectangular, circular and standard sections symmetrical about vertical axis.	**2**	
3.3	Stresses in shafts due to torsion: Concept of torsion, basic assumptions of pure torsion, torsion of solid and hollow circular sections, polar moment of inertia, torsional shearing stresses, angle of twist, torsional rigidity, equation of torsion	**6**	
3.4	Combined bending and direct stresses: Combination of stresses, Combined direct and bending stresses, Maximum and Minimum stresses in Sections, Conditions for no tension, Limit of eccentricity, Middle third/fourth rule, Core or Kern for square, rectangular and circular sections, chimneys, dams and retaining walls	**5**	
4	**Columns and Struts**	**1**	
4.1	Columns and Struts, Definition, Short and Long columns, End conditions, Equivalent length / Effective length, Slenderness ratio, Axially loaded short and long column, Euler's theory of long columns, Critical load for Columns with different end conditions	**3**	
5	**Shear Force and Bending Moment**	**1**	
5.2	Types of loads and beams: Types of Loads: Concentrated (or) Point load, Uniformly Distributed load (UDL), Types of Supports: Simple support, Roller support, Hinged support, Fixed support, Types of Reactions: Vertical reaction, Horizontal reaction, Moment reaction, Types of Beams based on support conditions: Calculation of support reactions using equations of static equilibrium.	**8**	
5.3	Shear force and bending moment in beams: Shear Force and Bending Moment: Signs Convention for S.F. and B.M, S.F and B.M of general cases of determinate beams with concentrated loads and udl only, S.F and B.M diagrams for Cantilevers, Simply supported beams and Over hanging beams, Position of maximum BM, Point of contra flexure, Relation between intensity of load, S.F and B.M.	**10**	
6	**Slope and Deflection**	**1**	
6.1	Introduction: Shape and nature of elastic curve (deflection curve); Relationship between slope, deflection and curvature (No derivation), Importance of slope and	**2**	

	deflection.		
6.2	Slope and deflection of cantilever and simply supported beams under concentrated and uniformly distributed load (by Double Integration method, Macaulay's method).	**2**	
7	**Indeterminate Beams**	**1**	
7.1	Indeterminacy in beams, Principle of consistent deformation/compatibility, Analysis of propped cantilever, fixed and two span continuous beams by principle of superposition, SF and BM diagrams (point load and udl covering full span)	**3**	
8	**Trusses**	**1**	
8.1	Introduction: Types of trusses, statically determinate and indeterminate trusses, degree of indeterminacy, stable and unstable trusses, advantages of trusses	**2**	
8.2	Analysis of trusses: Analytical method (Method of joints, method of Section)	**2**	

SUBJECT- GEOTECHNICAL ENGINEERING **SUBJECT CODE-TH2**

SEM-3RD **BRANCH-CIVIL**

SUBJECT-GTE	GANDHI INSTITUTE OF ADVANCE COMPUTER & RESEARCH	3RD SEM	FACULTY NAME-SHRABANEE GIRI
MODULE NO	TOPICS TO BE COVERED	NO OF PERIODS REQUIRED	TENTATIVE DATE FOR COMPLETION
1	**Introduction**	1	
1.1	Soil and Soil Engineering	1	
1.2	Scope of Soil Mechanics	1	
1.3	Origin and formation of soil	1	
2	**Preliminary Definitions and Relationship**	1	
2.1	Soil as a three Phase system	1	
2.2	Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids, air content, degree of saturation, density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters	10	
3	**Index Properties of Soil**	1	
3.1	Water Content	1	
3.2	Specific Gravity	1	
3.3	Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses	2	
3.4	Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index	3	
4	**Classification of Soil**	1	
4.1	General	1	
4.2	I.S. Classification, Plasticity chart	1	
5	**Permeability and Seepage**	1	
5.1	Concept of Permeability, Darcy's Law, Co-efficient of Permeability,	1	
5.2	Factors affecting Permeability	1	
5.3	Constant head permeability and falling head permeability Test	1	
5.4	Seepage pressure, effective stress, phenomenon of quick sand	1	
6	**Compaction and Consolidation**	1	
6.1	Compaction: Compaction, Light and heavy compaction Test, Optimum Moisture4 Content of Soil, Maximum dry density, Zero air void line, Factors affecting Compaction, Field compaction methods and their suitability	5	
6.2	Consolidation: Consolidation, distinction between compaction and consolidation. Terzaghi's model analogy of compression/	3	

	springs showing the process of consolidation – field implications		
7	**Shear Strength**	**1**	
7.1	Concept of shear strength, Mohr- Coulomb failure theory, Cohesion, Angle of internal friction, strength envelope for different type of soil, Measurement of shear strength;- Direct shear test, tri axial shear test, unconfined compression test and vane-shear test	**5**	
8	**Earth Pressure on Retaining Structures**	**1**	
8.1	Active earth pressure, Passive earth pressure, Earth pressure at rest.	**1**	
8.2	Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge, (ii) backfill with uniform surcharge	**2**	
9	**Foundation Engineering**	**1**	
9.1	Functions of foundations, shallow and deep foundation, different type of shallow and deep foundations with sketches. Types of failure (General shear, Local shear & punching shear)	**5**	
9.2	Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings, Effect water table on bearing capacity of soil	**2**	
9.3	Plate load test and standard penetration test	**1**	

SUBJECT- BUILDING MATERIALS AND CONSTRUCTIONS TECHNOLOGY

SUBJECT CODE-TH3

SEM-3RD **BRANCH-CIVIL**

SUBJECT-BM & CT	GANDHI INSTITUTE OF ADVANCE COMPUTER & RESEARCH	3RD SEM	FACULTY NAME-DIPTI BIBHAR
MODULE NO	TOPICS TO BE COVERED	NO OF PERIODS REQUIRED	TENTATIVE DATE FOR COMPLETION
	PART :A (BUILDING MATERIALS)		
1	**Stone**	1	
1.1	Classification of rock, uses of stone, natural bed of stone	2	
1.2	Qualities of good building stone	1	
1.3	Dressing of stone	1	
1.4	Characteristics of different types of stone and their uses	1	
2	Bricks	1	
2.1	Brick earth – its composition	1	
2.2	Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)	2	
2.3	Classification of bricks, size of traditional and modular bricks, qualities of good building bricks	2	
3	Cement, Mortar and Concrete	1	
3.1	Cement: Types of cements, Properties of cements, Manufacturing of cement	2	
3.2	Importance and application of blended cement with fly ash and blast furnace slag.	2	
3.3	Mortar: Definition and types of mortar	1	
3.4	Sources and classification of sand, Bulking of sand	1	
3.5	Use of gravel, morrum and fly ash as different building material	2	
3.6	Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete	2	
4	Other Construction Materials	1	
4.1	Timber: Classification and Structure of timber	1	
4.2	Seasoning of timber – Importance.	1	
4.3	Characteristics of good timber	1	
4.4	Clay products and refractory materials – Definition and Classification.	1	
4.5	Properties and uses of refractory materials- tiles, terracotta, porcelain glazing	1	
4.6	Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel	1	

5	Surface Protective Materials	1	
5.1	Composition of Paints, enamels, varnishes	1	
5.2	Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish	2	
	PART: B (CONSTRUCTIONS TECHNOLOGY)		
1	**Introduction**	1	
1.1	Buildings and classification of buildings based on occupancy	1	
1.2	Different components of a building.	1	
1.3	Site investigation – objectives, site reconnaissance and explorations	1	
2	**Foundations**	1	
2.1	Concept of foundation and its purpose	1	
2.2	Types of foundations – shallow and deep	1	
2.3	Shallow foundation-constructional details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block	1	
2.4	Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation.	1	
3	**Walls & Masonry Works**	1	
3.1	Purpose of walls	1	
3.2	Classification of walls – load bearing, non-load bearing walls, retaining walls.	1	
3.3	Classification of walls as per materials of construction: brick, stone, reinforced brick, reinforced concrete, precast, hollow and solid concrete block and composite masonry walls (Concept Only).	1	
3.4	Partition Walls : Suitability and uses of brick and wooden partition walls	1	
3.5	Brick masonry : Definition of different terms	1	
3.6	Bond – meaning and necessity: English bond for 1and 1-1/2 Brick thick walls. T, X and right angled corner junctions. Thickness for 1and 1-1/2 brick square pillars in English bond	1	
3.7	Stone Masonry :	1	
3.8	Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress	1	
4	**Doors, Windows And Lintels**	1	
4.1	Glossary of terms used in doors and windows	1	
4.2	Doors – different types of doors	1	
4.3	Windows – different types of windows	1	
4.4	Purpose of use of arches and lintels	1	
5	**Floors, Roofs and Stairs**	1	
5.1	Floors: Glossary of terms ,Types of floor finishes – cast-in-situ, concrete flooring(monolithic, bonded), terrazzo tile	1	

	flooring, cast in situ Terrazzo flooring, timber flooring (Concept only)		
5.2	Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs	1	
5.3	Stairs: Glossary of terms; Stair case, winder, landing, stringer, newel, baluster, rise, tread, width of stair case, hand rail, nosing, head room, mumty room	1	
5.4	Various types of stair case – straight flight, dog legged, open well, quarter turn, half turn (newel and geometrical stairs), bifurcated stair, spiral stair, cantilever stair, tread riser stair.	1	
6	**Protective, Decorative Finishes, Damp and Termite Proofing**	1	
6.1	Plastering – purpose – Types of plastering, Types of plaster finishes – Grit finish, rough cast, smooth cast, sand faced, pebble dash, acoustic plastering and plain plaster etc.	1	
6.2	Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing	1	
6.3	Pointing – purpose –Types of pointing	1	
6.4	Painting – objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces.	2	
6.5	White washing – Colour washing – Distempering – internal and external walls.	1	
6.6	Damp and Termite proofing – Materials and Methods.	1	
7	**Green Buildings, Energy Management and Energy Audit Of Buildings & Project**	1	
7.1	Concept of green building	1	
7.2	Introduction to Energy Management and Energy Audit of Buildings.	1	
7.3	Aims of energy management of buildings	1	
7.4	Types of energy audit, Response energy audit questionnaire	1	
7.5	Energy surveying and audit report.	1	

SUBJECT- ESTIMATION & COST EVALUATION - 1 **SUBJECT CODE-TH4**

SEM-3RD **BRANCH-CIVIL**

SUBJECT-EST-1	GANDHI INSTITUTE OF ADVANCE COMPUTER & RESEARCH	3RD SEM	FACULTY NAME-M.ANKITA
MODULE NO	**TOPICS TO BE COVERED**	**NO OF PERIODS REQUIRED**	**TENTATIVE DATE FOR COMPLETION**
1	**Introduction**	**1**	
1.1	Types of estimates – Plinth area, floor area / carpet area	**2**	
1.2	Units and modes of measurements as per IS 1200	**2**	
1.3	Accuracy of measurement for different item of work	**3**	
2	**Quantity Estimate of Building**	**2**	
2.1	Short wall long wall method and centre line method,	**2**	
	deductions in masonry, plastering, white washing, painting etc	**3**	
	multiplying factor (paint coefficients) for painting of doors and windows (paneled/glazed), grills etc.	**3**	
2.2	Detailed estimate of single storied flat roof building with shallow foundation and RCC roof slab with leak proof treatment over it including staircase and mumty room	**10**	
3	**Analysis of Rates and Valuation**	**1**	
3.1	Analysis of rates for cement concrete	**2**	
	brick masonry in Cement Mortar, laterite stone masonry in Cement Mortar	**2**	
	cement plaster, white washing, Artificial Stone flooring, Tile flooring, concrete flooring,	**3**	
	R.C.C. with centering and shuttering,	**2**	
	reinforcing steel, Painting of doors and windows etc. as per OPWD	**3**	
3.2	Calculation of lead, lift, conveyance charges, royalty of materials, etc. as per Orissa P.W.D. system (Concept of C.P.W.D./Railways provisions)	**5**	
3.3	**Abstract of cost of estimate**	**2**	
3.4	Valuation- Value and cost, scrap value, salvage value,	**2**	
	assessed value, sinking fund, depreciation and obsolesce, methods of valuation	**3**	
4	**Administrative Set-Up of Engineering Organisations:**	**2**	
4.1	Administrative set-up and hierarchy of Engineering department in State Govt./Central Govt./PSUs/Private Sectors etc.	**3**	
	Duties and responsibilities of Engineers at different positions /levels.	**3**	

SUBJECT- ENVIRONMENTAL STUDIES **SUBJECT CODE-TH5**

SEM-3RD **BRANCH-CIVIL**

SUBJECT-EVS	GANDHI INSTITUTE OF ADVANCE COMPUTER & RESEARCH	3RD SEM	FACULTY NAME-V.PAVANI
MODULE NO	**TOPICS TO BE COVERED**	**NO OF PERIODS REQUIRED**	**TENTATIVE DATE FOR COMPLETION**
1	**The Multidisciplinary nature of environmental studies**	**1**	
1.1	Definition, scope and importance, Need for public awareness.	**1**	
2	**Natural Resources** **Renewable and non renewable resources:**	**1**	
	Natural resources and associated problems. Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people.	**4**	
	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems	**3**	
2.1	Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.	**1**	
2.2	Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity,.	**4**	
2.3	Energy Resources: Growing energy need, renewable and nonrenewable energy sources, use of alternate energy sources, case studies.	**2**	
2.4	Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification b) Role of individual in conservation of natural resources. c) Equitable use of resources for sustainable life styles.	**5**	
3	**Systems**	**1**	
3.1	Concept of an eco system. Structure and function of an eco system. • Producers, consumers, decomposers. • Energy flow in the eco systems. • Ecological succession. • Food chains, food webs and ecological pyramids.	**4**	
3.2	Introduction, types, characteristic features, structure and function of the following eco system: Forest ecosystem:• Aquatic eco systems (ponds, streams, lakes ,rivers, oceans, estuaries).	**3**	
4	**Biodiversity and it's Conservation-Introduction-Definition: genetics, species and ecosystem diversity. Biogeographically classification of India.**	**1**	
4.1	Value of biodiversity: consumptive use, productive use, social	**1**	

	• ethical, aesthetic and opt in values		
4.2	Biodiversity at global, national and local level. Threats to biodiversity: Habitats loss, poaching of wild life, man • wild life conflicts.	**1**	
5	**Environmental Pollution-Definition Causes, effects and control measures of:**	**1**	
5.1	a) Air pollution. b) Water pollution. c) Soil pollution d) Marine pollution e) Noise pollution. f) Thermal pollution g) Nuclear hazards	**2**	
5.2	Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Disaster management: Floods, earth quake, cyclone and landslides.	**3**	
6	**Social issues and the Environment-Form unsustainable to sustainable development. Urban problems related to energy.• Water conservation, rain water harvesting, water shed management.**	**4**	
6.1	Resettlement and rehabilitation of people; its problems and concern. Environmental ethics: issue and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies.	**5**	
6.2	Air (prevention and control of pollution) Act. Water (prevention and control of pollution) Act.• Public awareness.	**2**	
7	**Human population and the environment**	**2**	
7.1	Population growth and variation among nations. Population explosion- family welfare program.	**4**	
7.2	Human rights. Value education	**1**	
7.3	Role of information technology in environment and human health.	**3**	

SUBJECT- CIVIL ENGINEERING LAB-1 **SUBJECT CODE - Pr1**

SEM-3RD **BRANCH - CIVIL**

Experiment No.	Experiment to be done	No. of periods required	Tentative date for completion
I	**Material Testing Laboratory:**	1	
1	**Test on Steel**	1	
1.1	Determination of Young's Modulus of steel in a tensile testing machine.	1	
2	**Tests on Cement, Sands, Bricks, Blocks & Aggregates**	2	
2.1	Determination of fineness of Cement by sieving.	1	
2.2	Determination of normal Consistency, initial and final setting time of Cement	1	
2.3	Determination of soundness of Cement by Le-Chatelier apparatus.	1	
2.4	Determination of Compressive Strength of cement.	1	
2.5	Determination of Compressive Strength of Burnt clay, Fly Ash Bricks and Blocks.	1	
2.6	Grading of Fine & Coarse aggregate by sieving for concrete.	1	
2.7	Determination of Specific Gravity and Bulking of sand.	1	
2.8.	Determination of Specific Gravity and Bulk density of coarse aggregate	1	
2.9	Grading of Road Aggregates.	1	
2.10	Determination of Flakiness, Elongation of Road aggregates.	1	
2.11	Determination of Crushing Value Test of aggregates.	1	
2.12	Los-Angeles Abrasion Test of aggregate.	1	
2.13	Impact test of aggregates.	1	
2.14	Determination of soundness test of road aggregates.	1	
II	**Concrete Laboratory**	1	
3.1	Determination of Compressive Strength of concrete cubes.	2	
3.2	Determination of Workability of concrete by: a) Slump Cone method, b) Compaction Factor method	4	
3.3	Non Destructive tests on Concrete: a) Demonstration on Rebound hammer b) Ultrasonic Pulse Velocity measuring Instrument.	4	

SUBJECT- CIVIL ENGINEERING DRAWING - 1 **SUBJECT CODE -Pr2**

SEM-3RD **BRANCH- CIVIL**

Experiment No.	Experiment to be done	No. of periods required	Tentative date for completion
1	**AutoCAD SOFTWARE.**		
1.1	Recap of the Draw, Format, Edit, Dimension, Modify commands	1	
1.2	Draw 2D drawings of the following Building Components Doors, Windows, Cross section through wall, Spread footing, Column footing, Stairs case, R.C.C. T-beam and slab	3	
1.3	Develop Isometric drawings of simple objects	1	
1.4	Develop 3D drawings of simple objects.	1	
2	**PLAN, ELEVATION AND SECTIONAL ELEVATION OF FLAT ROOF BUILDING FROM LINE DIAGRAM AND GIVEN SPECIFICATIONS with use of AutoCAD software.**	1	
2.1	Plan at window sill level of a single storeyed R.C. roof slab building with elevation and sectional views form given line diagram and specification.	4	
2.2	Detail drawing of Double storeyed pucca building with R.C.C. stair case from line diagram and given specification.	2	
2.3	Preparation of approval drawing of a residential building as per the norms of local approving authority with site plan, index plan etc.	2	
3	**PLAN, ELEVATION AND SECTION OF INCLINED ROOF BUILDING WITH AC SHEET/GCI/TILES ON WOODEN STRUCTURE with use of AutoCAD Commands**	1	
3.1	Detail drawing of inclined roof building from given line diagram and specification. (gabbled / hipped)	1	
4	**BUILDING PLANNING**		
4.1	Planning of buildings for specific cost based on approximate plinth area rate.	1	
4.2	Orientation of buildings, location of openings and living areas.	1	
4.3	Line plan of School, hostel, market complex and dispensary building.	1	

SUBJECT- ESTIMATING PRACTICE **SUBJECT CODE - Pr3**

SEM-3RD **BRANCH- CIVIL**

Experiment No.	Experiment to be done	No. of periods required	Tentative date for completion
1	Preparation of plinth area estimate & detailed estimate for the following ; Introduction to Estimation & Costing • Types of estimates, units of measurement, PWD Schedule of Rates (SOR) structure. Understanding Plinth Area Estimate • Rules, format, assumptions, standard rates. • Introduction to Odisha PWD SOR**,** overview of specifications and item codes.	3	
1.1	Single storeyed two roomed building with specification as per Orissa P.W.D. schedule of rates and analysis of rates • Plinth Area Estimate of Single-storeyed two-room building • Plinth Area Estimate of Two-storeyed pucca building using Odisha SOR.	3	
1.2	A two storeyed pucca Building with specification as per Orissa P.W.D. schedule of rates and analysis of rates • Components of a Detailed Estimate – Earthwork, Brickwork, RCC, etc. • Detailed Estimate for Single-storeyed two-roomed building • Detailed Estimate for Two-storeyed pucca building	4	
2	Analysis of rates in detail for the above items of works basing on Orissa Govt. analysis of rate with help of MS Excel software. • Introduction to Rate Analysis – Labour, Material, Tools. • 1st Class Brickwork, Cement Concrete, Plastering, PCC, RCC, etc.	3	
3	Calculation of dry materials for different items of building basing on Orissa Govt. analysis of rate with help of MS Excel software • Dry Material Requirement for: Brickwork, Plaster, RCC, PCC – cement, sand, aggregates, steel.	3	
4	Preparation of abstract of cost and bill of quantities of the estimates as per item no. 1.0 above with help of MS Excel software	4	