 MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES																
COURSE NAME : CIVIL ENGINEERING GROUP																
COURSE CODE : CE/CS/CR/CV																
DURATION OF COURSE : 6 SEMESTERS for CE/CS/CR (8 SEMESTER for CV)													WITH EFFECT FROM 2009-10			
SEMESTER : THIRD													DURATION : 16 WEEKS			
PATTERN : FULL TIME													SCHEME : E			
SR. NO.	SUBJECT TITLE	Abbreviation	SUB CODE	TEACHING SCHEME			EXAMINATION SCHEME									
				TH	TU	PR	PAPER HRS	TH (01)		PR (04)		OR (08)		TW (09)		SW (16003)
								MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	
1	Applied Mathematics (CE and ME Group)	AMA	12035	03	--	--	03	100	40	--	--	--	--	--	--	
2	Building Construction	BCO	12036	04	--	02	03	100	40	--	--	--	--	25@	10	
3	Building Drawing	BDR	12037	01	--	04	04	100	40	--	--	--	--	50@	20	
4	Concrete Technology	CTE	12038	04	--	02	03	100	40	--	--	50@	20	--	--	
5	Surveying	SUR	12039	03	--	04	03	100	40	50#	20	--	--	25@	10	50
6	Development of Life Skills-II	DLS	12041	01	--	02	--	--	--	--	--	25#	10	25@	10	
7	Professional Practices-III	PPR	12040	--	--	05	--	--	--	--	--	--	--	50@	20	
TOTAL				16	--	19	--	500	--	50	--	75	--	175	--	50

Student Contact Hours Per Week: **35 Hrs.**
THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.
Total Marks : **850**
@ Internal Assessment, # External Assessment, No Theory Examination.

Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Termwork, SW- Sessional Work

- Conduct two class tests each of 25 marks for each theory subject. Sum of the total test marks of all subjects is to be converted out of 50 marks as sessional work (SW).
- Progressive evaluation is to be done by subject teacher as per the prevailing curriculum implementation and assessment norms.
- Code number for TH, PR, OR and TW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.

Course Name : Civil and Mechanical Engineering Group

Course Code : AE/CE/CS/CV/CR/PG/PT/ME/MH/MI/FE/CH/PS/PT

Semester : Third

Subject Title : Applied Mathematics

Subject Code : 12035

Teaching and examination scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	--	03	100	--	--	--	100

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

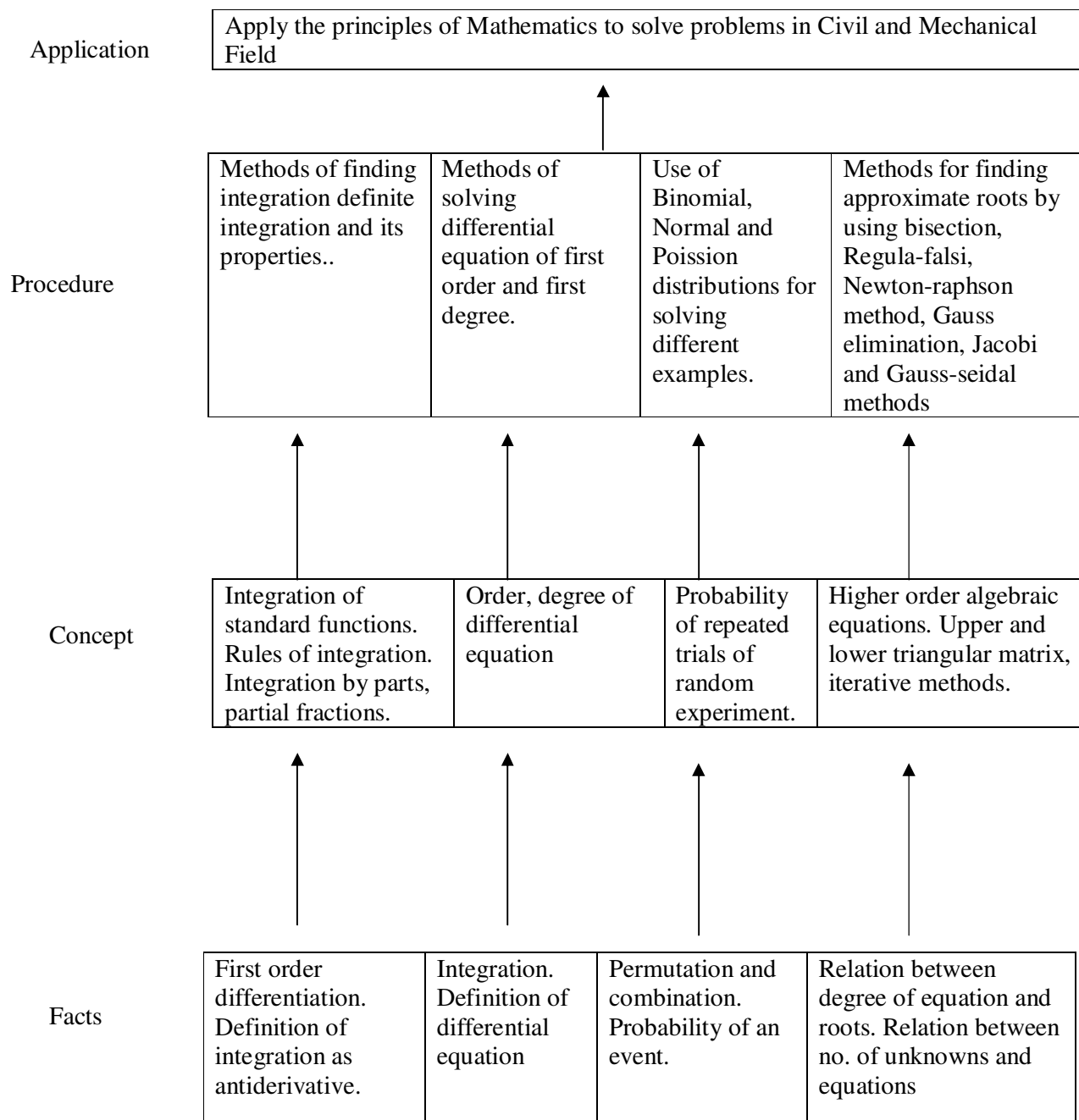
Rationale:

The study of mathematics is necessary to develop in the student the skills essential for studying new technological development. This subject introduces some applications of engineering, through which the student can understand the link of Mathematics with engineering principles.

Objective: The student will be able to:

1. Apply Mathematical term, concept, principles and different methods for studying engineering subjects
2. Apply Mathematical methods to solve technical problems,
3. Execute management plans with precision.
4. Use Mathematical techniques necessary for daily and practical problems.

Learning Structure:



CONTENTS: Theory

Chapter	NAME OF TOPIC	Hours	Marks
01	Integration: 1.1 Definition of integration as anti-derivative. Integration of standard function. 1.2 Rules of integration (Integrals of sum, difference, scalar multiplication). 1.3 Methods of Integration. 1.3.1 Integration by substitution 1.3.2 Integration of rational functions. 1.3.3 Integration by partial fractions. 1.3.4 Integration by trigonometric transformation. 1.3.5 Integration by parts.	10	18
	1.4 Definite Integration. 1.4.1 Definition of definite integral. 1.4.2 Properties of definite integral with simple problems.	04	08
	1.5 Applications of definite integrals. 1.5.1 Area under the curve. Area bounded by two curves, 1.5.2 Volume of revolution. 1.5.3 Centre of gravity of a rod, plane lamina.	06	10
02	Differential Equation 2.1 Definition of differential equation, order and degree of differential equation. Formation of differential equation for function containing single constant. 2.2 Solution of differential equations of first order and first degree such as variable separable type, reducible to Variable separable, Homogeneous, Non homogeneous, Exact, Linear and Bernoulli equations.	08	18
	2.3 Applications of Differential equations. 2.3.1 Rectilinear motion (motion under constant and variable acceleration) 2.3.2 Simple Harmonic Motion	04	10
	3.1 Probability: 3.1.1 Definition of random experiment, sample space, event occurrence of event and types of events (impossible, mutually exclusive, exhaustive, equally likely) 3.1.2 Definition of probability, addition and multiplication theorems of probability.	04	08
03	3.2 Probability Distribution 3.2.1 Binomial distribution. 3.2.2 Poisson's distribution. 3.2.3 Normal distribution 3.2.4 Simple examples corresponding to production process.	04	12

04	Numerical Methods 4.1 Solution of algebraic equations Bisection method, Regula-falsi method and Newton – Raphson method.	04	08
	4.2 Solution of simultaneous equations containing 2 and 3 unknowns Gauss elimination method. Iterative methods- Gauss Seidal and Jacobi's methods.	04	08
Total		48	100

Learning Resources:**Books:**

Sr. No.	Title	Authors	Publications
01	Mathematics for polytechnic	S. P. Deshpande	Pune Vidyarthi Griha Prakashan, Pune
02	Calculus: Single variable	Robert T. Smith	Tata McGraw Hill
03	Advanced Mathematics for Engineers and Scientist	Murray R Spiegel	Schaum outline series McGraw Hill
04	Higher Engineering Mathematics	B. S. Grewal	Khanna Publication, New Dehli
06	Introductory Methods of Numerical analysis	S. S. Sastry	Prentice Hall Of India New Dehli
07	Numerical methods for Engg. 4 th ed.	Chapra	Tata McGraw Hill
08	Numerical methods for scientific & engineering computations	M. K. Jain & others	Wiley Eastern Publication.

Course name : Civil Engineering Group

Course code : CE /CS /CR/CV

Semester : Third

Subject Title : Building Construction

Subject Code : 12036

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
04	--	02	03	100	--	--	25@	125

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

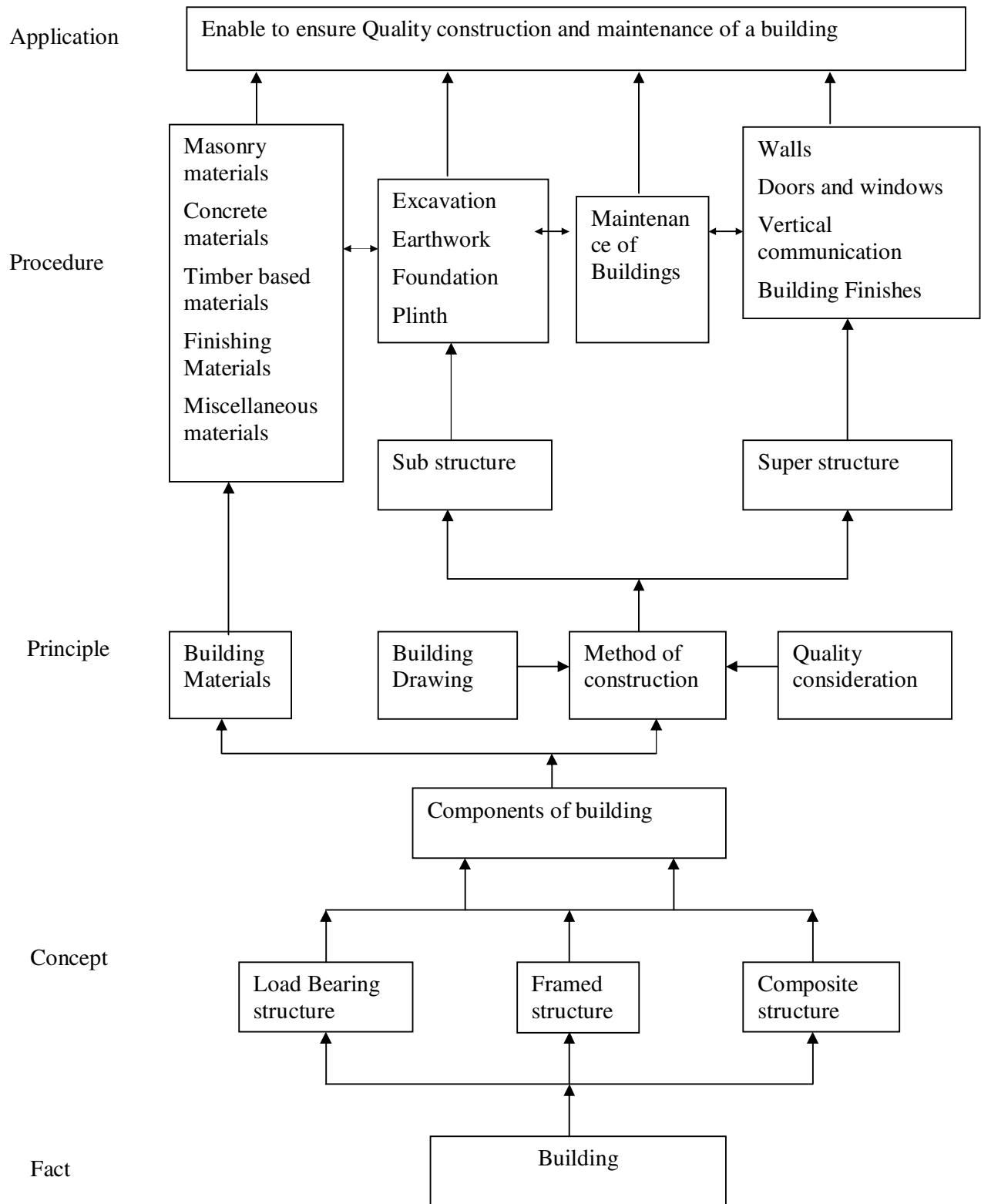
Building construction is a core subject in civil engineering. This subject is intended for gaining useful knowledge with respect to facts. Concepts ,principles and procedures related to building construction system so that student can effectively plan ,execute building construction work and carry out repairs and maintenance of existing building with quality in construction.

The subject helps to learn building materials required for construction. It provides necessary knowledge about properties, uses and market rates of building materials.

Objectives: Student will be able to:

1. Identify various components of buildings and their functions.
2. Mark layout of building on ground.
3. Know the procedure for execution of various constructions activities.
4. Check line, level and plumb of various construction activities.
5. Prepare checklist of operations for supervision of various construction activities.
6. Identify & suggest rectification the various defects in civil engineering works.

LEARNING STRUCTURE:



CONTENTS: THEORY

CHAPTER	NAME OF THE TOPIC	HOURS	MARKS
01	BUILDING COMPONENTS AND MATERIALS 1.1 Building Components and types of Structure Building components & their function. Substructure – foundation, plinth. Superstructure – walls, sill, lintel, doors & windows, Floor, roof, parapet, beams, columns. Types of Structures – Load bearing Structures, framed Structures, composite structures.	10	16
	1.2 MASONRY MATERIALS A) Building Stones- Classification of rocks, Requirement of good building stone, dressing of stones, quarrying of stones, artificial or cast stones b) Bricks – conventional bricks, standard bricks composition of clay brick, strength of bricks, Proportions of burnt clay bricks, testing of bricks, special bricks, hollow blocks, fly ash bricks. c) Mortars – classifications, Lime mortar, cement mortar, special mortars. Functions of mortar, proportions, properties of mortar and tests for mortar.		
	1.3 TIMBER BASED MATERIAL Use of timber, Characteristics of good timber, defects in timber, Plywood, particle board, veneer, sun mica, fore mica, Nuwood, artificial timber, rubber wood.		
02	CONSTRUCTION OF SUBSTRUCTURE 2.1 JOB LAYOUT Site clearance, preparing job layout, layout for load bearing structure and framed structure by center line and face line method, precautions while marking layout on ground .	10	18
	2.2 EARTHWORK Excavation for foundation, timbering and strutting Earthwork for embankment, material for plinth filling. Tools and plants used for excavation and earthwork.		
	2.3 FOUNDATION Definition, purpose, Types of foundation. Shallow foundation - Wall footing, isolated and combined column footing, stepped foundation, raft foundation, Deep foundation - Pile foundation – Types Bearing, friction, sheet, anchor, batter, fender piles. Cofferdams-Definition, types- Earthen, rock-fill, singled walled, double walled construction and use. Under reamed pile foundation. Pumping method of dewatering, Bearing capacity of foundation soil,		

03	<p>CONSTRUCTION OF SUPERSTRUCTURE</p> <p>3.1 STONE MASONRY Terms used in stone masonry – Facing, backing, hearting, through stone, corner stone etc. Uncoursed rubble masonry, coursed rubble masonry, point to be observed in construction of stone masonry, mortars for stone masonry, tools and plants used for stone masonry, Col-grout masonry.</p> <p>3.2 BRICK MASONRY Common terms used in brick masonry, Requirements of good brickwork, bonds in brick masonry, English, Flemish, Stretcher and header bonds only. Brick laying, Line, level and plumb of brickwork, striking and raking of joints, lead and lift, precautions in brick masonry, tools and plants used in brick masonry. Comparison between brick and stone masonry. Hollow concrete block masonry, composite masonry , Cavity wall- purpose and construction.</p> <p>3.3 DOORS AND WINDOWS Doors -Components and construction - panelled doors, battened doors, flush doors, collapsible doors, rolling shutters, Revolving doors, Glazed doors. Sizes of door. Windows -Component and construction - fully panelled, partly panelled and glazed, glazed wooden, steel, Aluminum windows, sliding windows, louvered window, ventilators, cement grills. Protective treatment for doors and windows, fixtures and fastenings for doors and window. Sill, lintel and weather shed- functions, types and construction.</p> <p>3.4 VERTICAL COMMUNICATION Means of vertical communication – Stair case, Elevator or lift, escalator, ramp, terms used in stair-case, requirement of good stair-case, types of stair-case, fabricated stair.</p> <p>3.5 SCAFFOLDING AND SHORING Purpose, Types of scaffolding, process of erection and dismantling. Purpose and types of shoring, Underpinning, safety precautions.</p>	24	32
04	<p>Building Finishes</p> <p>4.1 FLOORS AND ROOFS Floor finishes- shahabad , kota, marble, granite ,Kadappa, Ceramic tiles ,vitrified , mosaic tiles ,chequerred tiles, glazed tiles ,pavement blocks , concrete floors, tremix floor, skirting and dado. Process of laying- Process of laying and construction, finishing and polishing of floors. Roofing materials – AC sheets ,G.I. sheets, plastic sheets, fibre sheets, Mangalore tiles etc. Steel trusses. R.C.C. SLAB</p>	12	24

	4.2 WALL FINISHES Plastering – Necessity of plastering, Single coat plaster Double coat plaster , Neeru finishing and POP, special plasters stucco plaster , plaster board and wall claddings. Precaution to be taken while plastering. Defects in plaster. Pointing – Necessity and procedure of pointing. Painting – Necessity, Surface preparation, method of application, selecting suitable painting material, white wash and colour wash.		
05	BUILDING MAINTENANCE 5.1 CRACKS Causes and types of cracks, identification and repair of cracks. Guniting and grouting, use of epoxy and crack fills. 5.2 SETTLEMENT Settlement –causes and remedial measures Plinth protection – Necessity and materials used.	08	10
TOTAL		64	100

CONTENT: Practicals

Skills to be developed:-

Intellectual skills:- students will be able to

- A) Identify components of a building.
- B) Differentiate and identify types of building materials.
- C) Select appropriate material for building construction.
- D) Supervise the building construction activities.

Motor skills:- students will be able to.

1. Mark layout of building on the ground.
2. Check and mark various levels in building.

.List of practical:

1. To observe various models related to Building Construction to understand details of construction.
2. To collect various building materials from market and building sites to study their properties and uses.
3. To visit brick Kiln to understand manufacturing process of Bricks.
4. To set out foundation plan on ground for load bearing structure by centre line method.
5. To Visit Building construction site to understand various types of foundation.
6. To Understand construction procedure of English and Flemish Bond for Brick masonry .
7. To check and transfer line , level and plumb at various stages in building construction.

8. To visit Building Construction site to understand plastering process.
9. To Visit building construction site to understand painting process.
10. To Visit building construction site to understand Waterproofing process.

LEARNING RESOURCES:**BOOKS:**

Sr. No.	Title	Author	Publisher
1	Construction Materials	D.N. Ghose	Tata McGraw-Hill
2	Building materials	Amarjit Agrawal	New India Publication
3	Building materials	S. K. Duggal	New Age International
4	Engineering materials	Sharma	PHI Publication
5	Building Construction	S. P. Arora and Bindra	Dhanpat Rai Publication
6	Building Construction	S. C. Rangawala	Charotar Publication
7	Building Construction	Sushil Kumar	Standard Publication
8	Building Construction	B. C. Punmia	Laxmi Publication
9	Building Construction	S.K. Sharma	Tata McGraw-Hill
10	Civil Engineering materials	TTTI ,Madras	TTTI ,Madras
11	A to Z of Building Construction	Mantri Construction	Mantri Publication

Hand Books:

Sr. No.	Title	Author	Publisher
01	PWD Handbooks for -Materials - Masonry -Building -Plastering and Pointing - Foundation	Govt. of Maharashtra	Govt. of Maharashtra
02	Practical Civil Engineering Handbook	Khanna	Khanna Publication

BIS/ International Codes of Practice:

Sr. No.	Title
01	National Building Code
02	BIS 962-1973 Code of Architectural and Building Drawing
03	BIS 1256-1967 Code for Building Byelaws
04	BIS 1038- 1983 Steel Doors, Windows and Ventilators

SOFTWARE:

01	SuperCivil CD
02	MSBTE CAI Learning Package

Course Name : Civil Engineering Group

Course Code : CE /CS /CR/CV

Semester : Third

Subject Title : Building Drawing

Subject Code : 12037

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	04	04	100	--	--	50@	150

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

Drawing is basically the language of an engineer. It is a means of communication between owner, architect, engineer and contractor. Civil Engineering Diploma holder has to supervise various construction processes and execute civil engineering structures such as buildings, roads, railways, dams, bridges; etc. Civil Engineer has to convert design parameters, process details into pictorial views. Therefore he is required to understand and prepare the drawings. He has to interpret the drawings, so that, he can execute the works. Civil engineer should be competent to convert his ideas into the drawing. This helps him to transfer his ideas, thoughts to his subordinates on the site. Drawing makes his job simple and effective. Drawing helps in detailing the structures processes with quality parameters. Drawings are essential for drafting specifications and tender documents.

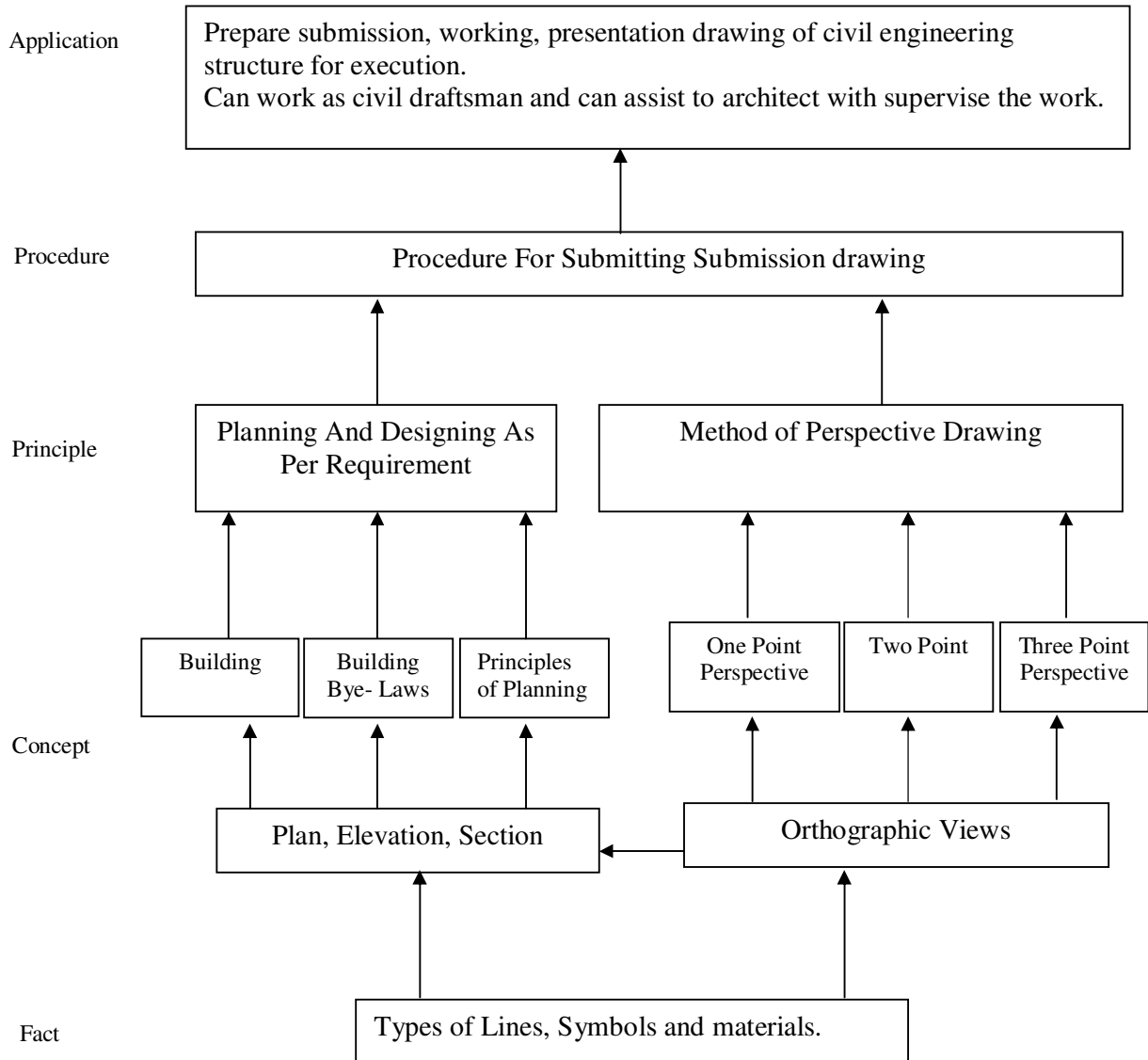
This subject is a core technology subject. The knowledge of this subject is useful for building construction, estimating and costing, design of structure, surveying, projects; etc.

Objectives:

The students will be able to –

- 1) Read, interpret and draw the building drawings.
- 2) Prepare submission drawings for the building.
- 3) Prepare working drawings for the building.
- 4) Plan various types of buildings considering the functional requirements.
- 5) Apply the building rules, regulations and byelaws.
- 6) Prepare perspective views of objects/buildings.

Learning Structure:



Contents: Theory**NOTE- Students drawing skill development will be from theory as well as Particles.**

Chapter	Name of the Topic	Hours	Marks
1.0	<p>Conventions</p> <p>1.1 Conventions as per IS:962-1989 .</p> <p>1.1.1 Purpose and importance of IS- 962</p> <p>1.1.2 Types of Lines – Visible line, Centerline, Hidden line, Section line, Dimension line, Extension line, Pointers, Arrow heads or dots.</p> <p>1.2 Symbols – Graphical symbols for doors and windows.</p> <p>Materials used in civil Engineering construction.</p> <p>Abbreviations, Scales for various types of Drawings.</p> <p>1.2.1 Layout and interpretation of available ammonia prints of residential buildings.</p>	02	08
2.0	<p>Planning Of Buildings</p> <p>2.1 Principles of planning of Residential and Public building.</p> <p>2.2 Space requirements and norms for various units of Residential and Public building.</p> <p>2.2.1 Minimum requirement for different units.</p> <p>2.2.2. General guide lines for different units</p> <p>2.3 Rules and byelaws of local governing authorities for construction.</p> <p>2.4 Drawing in the form of line plans for Residential and Public building with standards.</p> <p>Residential building of minimum three rooms.</p> <p>Public buildings – school building, primary health center or Hospital building, bank, post office, hostel building, Vegetable market, canteen, restaurant Etc.</p>	06	24
3.0	<p>Types Of Drawing</p> <p>Concepts of load bearing structures and framed structures to be considered for the following.</p> <p>3.1 Detailed Development of line plan with Orientation.</p> <p>3.2 Elevation</p> <p>3.3 Section</p> <p>3.4 Site plan and North Direction.</p> <p>3.5 Location Plan</p> <p>3.6 Foundation plan</p>	06	56

	3.7 Area statement (Plot area, built up area, carpet area , floor area) 3.8 Measured Drawing and data drawing. 3.9 Submission Drawing and Working Drawing 3.10 General construction notes / General specifications Etc.		
4.0	Perspective Drawing 4.1 Definition, Necessity, Principles of Perspective. Drawing, Terms used in perspective drawing and types. 4.2 Two point perspective view of a small object like pedestal, step block, small single storied building with flat roof / pitched roof etc.	02	12
	Total	16	100

Practical:

Skills to be developed:

Intellectual Skills:

1. Read and interpret the building drawings.
2. Plan residential and public buildings.
3. Apply the building rules, regulations and byelaws.

Motor Skills:

1. Prepare line plans of Residential and Public Buildings
2. Prepare Detailed Plans, Elevations, Sections and other working drawings for the buildings.

Term Work / Assignments:

Following exercises should be drawn on full imperial size drawing sheets.

1. Drawing various types of lines, lettering and symbols of materials, doors and windows etc. used in construction on Full Imperial size drawing sheet.as per IS- 962-1989(Reaffirmed 2001), CODE OF PRACTICES FOR ARCHITECTURAL AND BUILDING DRAWINGS.
2. Drawing the lines plans of following buildings on Full Imperial size **graph papers**.
 - Residential Building (Min. three rooms)
 - Public Building – School building, Primary health center / Hospital building, Bank, Post Office, Hostel building etc.(At least four)
3. Measured Drawing of an existing residential Building (Load bearing/ Framed structure Type), showing Plan , Elevation, Sections, Construction notes, Schedule of openings, Site Plan, Area statement etc .
4. Submission Drawing of two storied residential building (Framed structure type) showing Plans , Elevation, Sections, foundation plan ,layout plan, construction notes, Schedule of openings, Site Plan ,Area statement etc. with standard scales.

5. Working drawing of above drawing sheet preferably one plan, section through stair case to scale 1:50 etc.
6. Two point perspective view of a building drawn in submission drawing.
7. Tracing of a submission drawing prepared at Sr. No.4 above.
8. Ammonia print of submission drawing prepared at Sr. No.4, above. Show all the important features like Draingeline, water supply line, soak pit, septic tank, plot boundary, proposed built up area with standard colours as per rules and bye –laws of Plan sanctioning authority.

Learning Resources:

Books:

Sr. No.	Title	Author	Publisher
1	Text Book of Building Drawing	Shah, Kale, Patki	--
2	Elements of Building Drawing	D. M. Mahajan	--
3	Planning and Design of Building.	Y. S. Sane	--
4	Civil Engineering Drawing	Malik & Mayo	New Asian Publishers New Delhi
5	IS- Code of practice for Architectural and Building Drawings	BIS , New Delhi	Government publications
6	Building rules and Bye-Laws	-----	Municipal Corporation / Town planning / Municipal Council

Course Name : Civil Engineering Group

Course Code : CE/CS/CR/CV

Semester : Third

Subject Title : Concrete Technology

Subject Code : 12038

Teaching & Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
04	--	02	03	100	--	50@	--	150

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

Concrete Technology is a core technology subject of the courses of civil engineering group. Concrete is most widely used construction material in all types of civil engineering structures. Concrete is extensively used in the construction of various kinds of buildings, pavements, bridges, dams, waterways, pipes, water tanks, swimming pools etc. Advances in concrete technology have paved the way to make use of locally available materials by judicious selection of materials, its mix proportioning & proper workmanship so as to result in concrete that satisfies the performance criteria of the structure as per design. i.e. strength, durability and resistance to environmental attack.

Civil engineering technician is to plan, execute the construction work as per drawing, supervise and ensure the quality of final product of concrete it means strength, durability & finish. For effective supervision & quality control of concrete construction at all stages of concrete chain which broadly consists of supply, storage of concrete ingredients, various concreting operations & testing operations before, during & after construction. For this purpose, a civil engineering technician must have good knowledge of the concrete materials (i.e. properties of cement, sand, coarse aggregate water & admixtures.) and the main operations of concreting i.e. selection of materials, its mix proportioning, mixing, placing, compaction, curing & finishing. A technician should acquire the skill of testing, supervision of concrete work & interpretation of tests results.

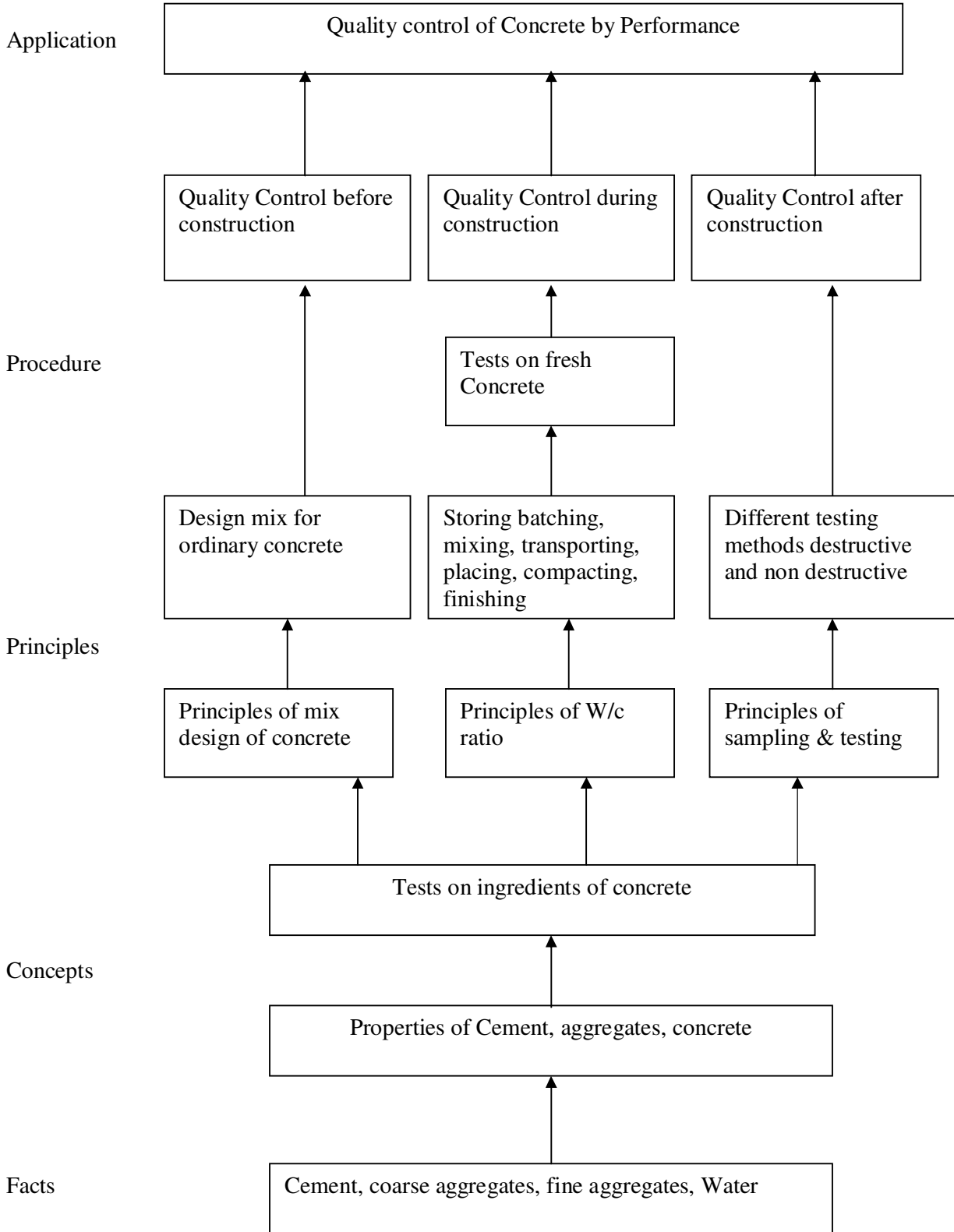
Objectives:

The Students will be able to

1. Determine the properties of concrete ingredients i.e. cement. Sand coarse aggregate by conducting different tests.
2. Use different types of cement as per their properties for different fields applications.
3. Design economic mix proportion for different exposure conditions and intended purposes.
4. Supervise various concreting operations.
5. Carry out field and laboratory tests on concrete in plastic and hardened stage.
6. Use different types of admixtures to improve the properties of concrete for different field applications.

- 7 Describe different types of concrete.
- 8 Infer the test results as per relevant I.S. provisions.

Learning Structure:



CONTENTS: THEORY

Chapter	Name Of The Topic	Hours	Marks
1	<p>Properties of Cement:</p> <p>1.1 Physical properties of Ordinary Portland cement (OPC), determination and test on OPC, Hydration of cement, physical properties of cement – fineness, standard consistency, initial & final setting times, compressive strength & soundness, different grades of opc 33, 43, 53 & their specification of physical properties as per relevant I. S. codes., storing cement at site, effect of storage of cement on properties of cement / concrete.</p> <p>1.2 Types of Cement Physical properties, specifications as per relevant IS codes & field application of the following types of cement</p> <ul style="list-style-type: none"> i) Rapid hardening cement ii) Low heat cement iii) Pozzolana Portland cement iv) Sulphate resisting cement vi) Blast furnace slag cement vii) White cement 	08	14
2	<p>Properties of Aggregates :</p> <p>2.1 Properties of fine aggregates : Concept of size, specific gravity, bulk density , water absorption.</p> <p>2.2 Determination of fineness modulus & grading zone of sand by sieve analysis, determination of silt content in sand & their specification as per IS 383</p> <p>2.3 Bulking of sand, phenomenon of bulking.</p> <p>2.4 Properties of coarse aggregates : Concept of size, shape, surface texture, water absorption, soundness, specific gravity & bulk density</p> <p>2.5 Determination of fineness modulus of coarse aggregate by sieve analysis, grading of Coarse Aggregates</p> <p>2.6 Determination of crushing value, impact value & abrasion value of coarse aggregate, flakiness index & elongation index of coarse aggregate and their specification.</p>	12	20

	<p>Properties of Concrete:</p> <p>3.1 Introduction to concrete - Definition of concrete, necessity of supervision for concreting operation, different grades of concrete (ordinary concrete, standard concrete & high strength concrete as per provisions of IS 456- 2000), minimum grade of concrete for different exposure conditions, minimum grade of concrete for R.C.C., water retaining structure durability of concrete</p> <p>3.2 Water cement ratio Definition of w/c ratio, Duff Abraham w/c law, significance of w/c ratio, selection of w/c ratio for different grades of concrete prepared from different grades of OPC as per graphs specified in IS 10262 -1982, maximum w/c ratio for different grades of concrete for different exposure conditions.</p> <p>3.3 Properties of fresh concrete Definition of workability, factors affecting workability of concrete. Determination of workability of concrete by slump cone test, compaction factor test, vee bee consistometer & flow table tests. Range values of workability requirement for different types of concrete works, cohesiveness, segregation, harshness, bleeding.</p>		
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3	<p>3.4 Properties of hardened concrete Definition of compressive strength, durability, impermeability, elastic properties of concrete, modulus of elasticity of concrete. Creep, factors affecting creep, shrinkage, factors affecting shrinkage</p> <p>3.5 Concrete Mix Design Objectives of mix design, list of different method of mix design, study of mix design procedure by I.S. method as per I.S. 10262-1982, determination of design mix proportion by mass for M 20 grade of concrete using I.S. Method for given data (such as grading zone of sand, proportion of 20 mm & 10 mm metals, specific gravities of cement, sand & aggregate , water absorption of sand & aggregate, compacting factor and exposure condition).</p> <p>3.6 Testing of concrete Significance of testing, determination of compressive strength of concrete cubes at different ages, interpretation & co-relation of test results</p> <p>3.7 Non- destructive testing of concrete Importance of NDT, methods of NDT - rebound hammer test & ultrasonic pulse velocity test, working principle of rebound hammer and factor affecting the rebound index, specification for deciding the quality of concrete by ultrasonic pulse velocity as per I.S. 13311 (part 1 & 2). Determination of compressive strength of concrete by rebound hammer test as per I.S. 13311, determination of quality of concrete by ultrasonic pulse velocity test</p>	16	22
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4	<p>Quality Control of Concrete:</p> <p>4.1 Batching, Different Types of Mixers & Vibrators Volume & weight batching, volume batching for nominal mixes & weight batching for design mix concrete, types of mixers (tilting & non-tilting type) Different types of vibrators - needle vibrator, surface vibrator, table vibrator, principle & application of each type of vibrator time for the removal of formwork as per I.S. 456- 2000 provisions for different structural members.</p> <p>4.2 Formwork : formwork for concreting, different types of formworks for different works such as beams, slabs, columns, materials used for formwork, requirement of good formwork, stripping</p> <p>4.3 Transportation, placing, compaction & finishing of concrete: Modes of transportation of concrete , precautions to be taken during transportation and placing of concrete in formwork compaction of concrete, methods of compaction, care to be taken during compaction, purpose of finishing, types of finishing & methods of application (surface treatment, expose aggregate finish, applied finish, coloured finish), requirement of good finish.</p> <p>4.4 Curing of concrete: definition of curing, necessity of curing different methods of curing and their application (spraying water, membrane curing, steam curing, curing by infra red radiations, curing by wet gunny bags, ponding methods).</p> <p>4.5 Waterproofing of concrete & joints in concrete construction: Importance & need of waterproofing, methods of waterproofing & materials used for waterproofing, types of joints, joining old & new concrete, methods of joining, materials used for filling joints.</p>	16	22
5	<p>Extreme weather concreting & chemical Admixture in concrete</p> <p>5.1 Extreme weather concreting Effect of cold weather on concrete, effect of hot weather on concrete, precautions to be taken while concreting in hot & cold weather condition.</p> <p>5.2 Chemical admixture in concrete Properties & application for different types of admixture such as accelerating admixtures, retarding admixtures, water reducing admixture, air entraining admixture & super plasticizers.</p>	06	10
6	<p>Properties of Special Concrete: Properties, Advantages & Limitation of the following types of Special concrete</p> <ul style="list-style-type: none"> i) Ready mix Concrete ii) Reinforced Concrete iii) Prestressed Concrete iv) Fiber Reinforced Concrete v) Precast Concrete vi) High performance Concrete 	06	12
Total		64	100

Practical:**Skill to be developed:**

Intellectual Skills:

1. Analyze the given data
2. Select proper method for analysis
3. Interpret the results

Motor Skills :

1. Measure the quantities accurately
2. Handle instruments properly

Term work shall consist of eight experiments in part A & mini project work in Part B

Part A: PART A consists of GROUP - I & GROUP - II.

Group I– Physical tests on ordinary Portland cement (any four)

- 1) Determination of fineness of cement preferably by Blaine's air permeability apparatus or by sieving.
- 2) Determination of standard consistency of OPC
- 3) Determination of initial & final setting times of OPC.
- 4) Determination of compressive strength of ordinary portland cement
- 5) Determination of soundness of OPC.

Group II – Tests on fine & coarse aggregates (any four)

- 1) Determination of silt content in sand by volume / weight
- 2) Determination of maximum % of bulking of sand
- 3) Determination of aggregate impact value.
- 4) Determination of aggregate abrasion value.
- 5) Determination of aggregate crushing value.
- 6) Determination of bulk density & water absorption, fine & coarse aggregated.

Part B:**Mini Project :**

Comparative study of compressive strength of concrete for different Water cement ratio With and without curing.

Note: video cassettes or cd's of above experiments developed by NITTTR (if available) shall be shown to the students on T. V. / L.C.D. projector prior to the conductance of above experiments.

Learning Resources:

Books

Sr.No.	Title	Author	Publisher
1	Concrete Technology	M. L. Gambhir	Tata Mc Graw . Hill Publishing Co. Ltd. New Delhi
2	Concrete technology	A. M. Neyille & J J Brooks	Pearson Education (Singapore) Pyt. Ltd. New Delhi
3	Concrete technology	M. S. Shetty	S. Chand Publication
4	Text book of Concrete technology	P. D. Kulkarni	M. H. Ghosh and Phull publication
5	Chemical Admixtures for concrete	H.R. Rixom	Powells' Books

Reference I.S. Codes:

- I.S.4031- (Part 1 to Part 6) Indian standard method of physical tests for hydraulic cement , BIS, New Delhi.
I.S.4031 (Part 1) - 1996 Part 1 – Determination of fineness by dry sieving.
I.S.4031 (Part 2) -1999 Part 2 – Determination of fineness by air permeability method.
I.S.4031 (part 3) -1988 (reaffirmed 2000) Part 3– Determination of soundness
I.S.4031 (part 4) - 1988 (reaffirmed 1995)
Part 4 - Determination of consistency of standard cement paste.
I.S.4031 (part 5) – 1988, (reaffirmed 2000) Part 5 - Determination of initial and final setting times
I.S : 4031 (part 6) – 1988, (reaffirmed 2000) Part 6 - Determination of compressive strength of hydraulic cement other than masonry cement
- I.S : 2386 (part i to part vi) – 1963 Indian standard methods of test for aggregate for concrete. BIS, New Delhi.
Part i - Particle size and shape. (reaffirmed 1997)
Part ii - Estimation of deleterious materials and organic impurities. (reaffirmed 2002)
Part iii - Specific gravity, density, voids, absorption & bulking. (reaffirmed 1997)
Part iv - Mechanical properties (reaffirmed 1997)
part v - Soundness. (reaffirmed 1997)
part vi - Measuring mortar making properties of fine aggregate. (reaffirmed 2002)
- I.S. : 383 – 1970 Indian standard specification for coarse & fine aggregates from natural sources for concrete. B.I.S., New Delhi.
- I.S. : 1911 - 1959 (reaffirmed) Indian Standard methods of sampling and analysis of concrete), B.I.S., New Delhi.
- I.S. : 456 - 2000 Indian standard , plain and reinforced concrete – code of practice. (fourth revision), B.I.S., New Delhi.
- I.S. : 516 – 1959 Indian standard methods of tests for strength of concrete (xii reprint December 1987), B.I.S., New Delhi.

7. I.S. : 8112- 1989 Indian standard - 43 grade ordinary portland cement Specification
8. I.S. : 12269 – 1987 (reaffirmed 1999) Indian standard specification for 53 grade O.P.C..
9. I.S. : 9103 – 1999 Indian standard –concrete admixtures specification
10. I.S. : 455- - 1989 (reaffirmed 1995) –Indian standard – Portland slag cement specification
11. I.S. : 1489 (part 1) 1991 – Portland – Pozzolana Cement – specification part 1 fly ash based
12. I.S. : 7861 (part 1) 1975 (reaffirmed 1997) – Indian standard of practice for extreme weather concreting part 1 recommended practice for hot weather concreting
13. I.S.: 7861 (part 2)– 1981 (reaffirmed 1997) – Indian standard of practice For extreme weather concreting part 2 – recommended practice for cold weather concreting
13. I.S. : 8041 – 1990 – Indian standard – rapid hardening Portland Cement specification BIS- New Delhi
14. I.S. : 12330 – 1988 (reaffirmed 1995) – Indian standard specification for sulphate resisting Portland cement
15. I.S. : 12600 - 1989 (reaffirmed 1995) - Portland cement, low heat Specification
16. I.S. : 10262 – 1982 Indian standard recommended guidelines for concrete mix Design
17. Sp 23 handbook on concrete mixes (based on Indian standards)
18. I.S. 13311 (part-1 & 2)- 1992 methods of non-destructive testing of concrete. part-1 ultrasonic pulse velocity, part-2 rebound hammer.

Course Name : Civil Engineering Group

Course Code : CE /CS/ CR/CV

Semester : Third

Subject Title : Surveying

Subject Code : 12039

Teaching and Examination Scheme:

TEACHING SCHEME			EXAMINATION SCHEME					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	04	03	100	50#	--	25@	175

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

RATIONALE:

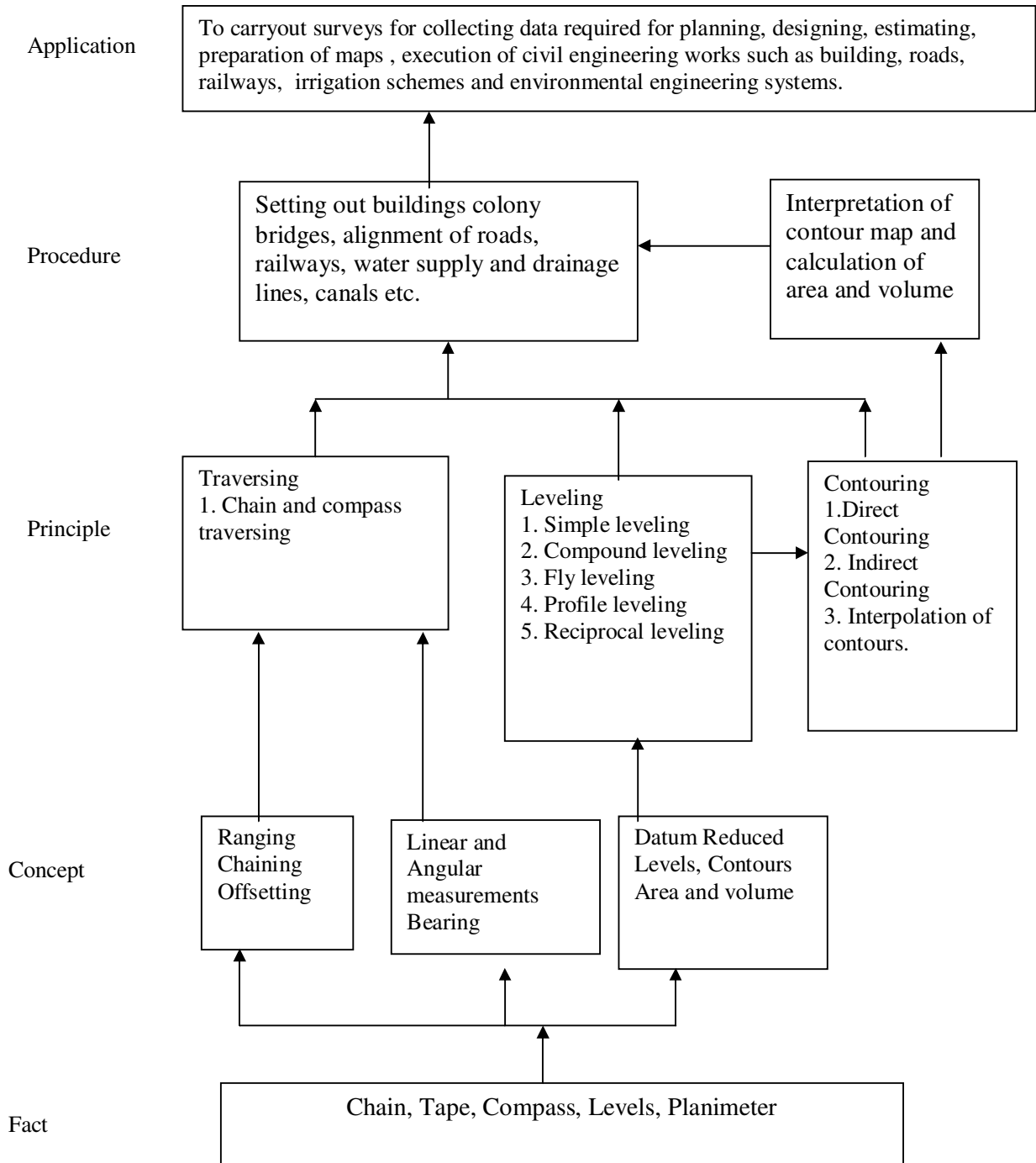
To initiate any Civil Engineering Project in Building Construction System, Irrigation Engineering System and Environmental Engineering System, the knowledge and skill of Surveying is a basic requirement for a Civil Engineer. With this knowledge and skill he will be able to choose appropriate survey and leveling methods, instruments and carry out survey work to prepare required maps. The plans /maps will be further used for designing, estimating and execution of Civil Engineering Works. One should acquire knowledge and develop the skills in surveying.

Objectives:

Students will be able to:

1. Use the survey instruments.
2. Take linear and angular measurements.
3. Measure the area of land.
4. Prepare layouts and maps.
5. Set out alignments for roads, railways, canals, pipelines, tunnels etc.
6. Prepare contour map.
7. Compute area and volume from given contour map.

LEARNING STRUCTURE:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	Types of Survey Definition. Objects of Surveying,. Principles of Surveying. Uses of survey, Classification of Surveying. Primary –Plain, Geodetic. Secondary – Based on Instruments, method, object, Nature of field.	04	06
02	Chain & Cross Staff Survey 2.1 Principle of Chain Survey .Study and use of Instruments for linear measurements – chain, Tape, Ranging Rod, arrows, pegs, cross Staff, optical Square, line Ranger. 2.2 Ranging –Direct and Indirect Ranging Chaining – Plain and sloping grounds. Chain Triangulation – Survey Station and their Selections, Survey lines, Check lines, Tie lines, base line. Taking offsets long and short offset, degree of offset. Obstacles in chaining. 2.3 Chain & cross staff Survey for finding area of a field (Numerical problems) Errors in chain Surveying & applying Corrections for chain & Tape (Numerical problems). Conventional signs related to survey.	08	18
03	Compass Survey 3.1 Principle of Compass Survey. Bearing of lines – Meridian –True, Magnetic, and Arbitrary. Bearing –fore bearing, Back bearing, Whole circle bearing, Quadrantal bearing system and Reduced bearing, Conversion of bearings, finding included angles from bearings. 3.2 Prismatic Compass – Component, construction and use. Local attraction, Causes, precautions to be taken to avoid and correction of bearings affected due to local attraction, calculation of included angles. 3.3 Traversing – open traverse, closed traverse, check on open and closed traverse. Graphical adjustment for closing error. 3.4 Numerical problems on calculation of Bearings, Angles and local attraction.	12	24

04	<p>Levelling</p> <p>4.1 Definitions – Level surface, Level line, horizontal line, Vertical line, Datum surface, Reduced level, Bench mark and its types. Dumpy level –Components, Construction, Line of sight, Line of Collimation, Bubble tube axis, leveling Staff – Telescopic and folding type .Foresight, back sight, Intermediate sight, Change point, Height of collimation . Fundamental axes and their relationship Recording in level book. Temporary adjustments of dumpy level.</p> <p>4.2 Method of Reduction of levels – Height of instrument method and Rise and fall method. Arithmetical checks, Numerical problems, Computation of missing readings.</p> <p>4.3 Classifications of leveling - simple, differential, profile, cross sectional, fly and check levelling.</p> <p>4.4 Study and use of tilting level & Auto level.</p> <p>4.5 Sources and errors in levelling, precautions and difficulties faced in levelling.</p>	16	30
05	<p>Contouring</p> <p>5.1 Definitions – Contour, contour interval, Horizontal equivalent.</p> <p>5.2 Characteristics of contours .Method of locating contours. Interpolation of contours. Establishing grade contours.</p> <p>5.3 Uses of Contour Maps. Interpretation of Typical Contour Sheets.</p>	04	12
06	<p>Area And Volume Measurements</p> <p>6.1 Construction and use of polar planimeter for measurement of area and simple numerical problems.</p> <p>6.2 Study and use of Digital Planimete .Concept of computation of Volume by Trapezoidal and Prismoidal formulae.(No numerical problems)</p>	04	10
TOTAL		48	100

PRACTICAL:**Skills to be developed:****Intellectual Skills:**

- 1) Identify the different instruments for Linear measurement and levelling
- 2) Record and observing necessary Observation with the survey instruments
- 3) Classify and discriminating various types of survey instruments.
- 4) Identify the errors of the survey instruments.

Motor Skills:

1. Measure distances, bearings and finding reduced levels with survey instruments.
2. Prepare drawing using survey data.
3. Prepare contour map of a given terrain/topography.
4. Measure area of an irregular shape figure with planimeter.

INSTRUCTIONS:

1. Group size for Survey Practical work should be maximum 6 Students.
2. Each student from a group should handle the instrument independently to understand the function of different Components and use of the instrument.
3. Drawing, plotting should be considered as part of practical.
4. One full day per project is required for carrying out project work.

TERM WORK SHALL CONSIST OF RECORD OF ALL PRACTICAL AND PROJECTS IN FIELD BOOK AND DRAWING OF PROJECT WORK ON FULL IMPERIAL SIZE DRAWING SHEETS.

1. Measurement of distances with chain & tape on ground with direct or indirect ranging.
2. Construction and use of optical square and open cross staff for setting out perpendicular and running a survey line for locating details.
3. Measurement of Area by Chain and cross staff survey.
4. Use of prismatic compass and observing fore bearing and back bearing.
5. Measuring Fore bearing and Back bearing of 5-6 side closed polygon. Identifying stations affected by local attraction and calculation of corrected F.B. & B.B.
6. Measuring fore bearing and back bearing for an open traverse (5 to 6 sided). Calculate direct angles between successive lines.
7. Use of Dumpy level, temporary adjustments and taking reading on levelling staff. Recording readings in field book.
8. Differential levelling practice, reduction of level by H.I. method.
9. Differential levelling practice, reduction of level by rise & fall method.
10. Carrying Bench mark from one point to another point about 200 m by fly levelling with tilting level.
11. Use of auto level and taking observation.
12. Measurement of Area of irregular figure by polar planimeter.
13. Measuring area enclosed by closed contours on contour map prepared earlier, by simple digital planimeter

SURVEYING PROJECTS:-

1. **Chain & Compass Traverse Survey** – A simple closed traverse of 5-6 sides enclosing a building. Calculation of included angles, locating details and plotting them on A 1 size imperial drawing sheet.
2. **Block Contouring** – A block of 100 x 150m with spot levels at 10x10m plotting the contours on A-1 size imperial drawing sheet with a contour interval of 1m.
3. **Profile levelling survey** – Running a longitudinal section for a length of 500 m for a road /canal /railway alignment. Cross section shall be taken suitably. Plotting plan, L-section and cross section on A1 size imperial drawing sheet.

Learning Resources:**1) Books:**

Sr. No.	Title	Author	Publisher
01	Surveying and Levelling	N.N.Basak	Tata Mc Graw-Hill
02	Surveying and Levelling Part I and II	T .P. Kanetkar & S. V, Kulkarni	PUNE VIDHYARTHI GRIHA Prakashan
03	Surveying and Levelling Vol. I and II	Dr. B. C. Punmiya	Laxmi Publication
04	Text book of Surveying	S.K.Husain, M.S. Nagaraj	S. Chand and company
05	Surveying and Levelling Vol. I and II	S. K. Duggal	TATA MC GRAW-HILL
06	Plane Surveying	A.M.Chandra	New Age International Publishers

2) VIDEO CASSETTES /CDS:

Sr. No.	Title
01	MSBTE CAI PACKAGE

Course Name : Civil Engineering Group

Course Code : AE/CE/CS/CV/CR/PG/PT/ME/MH/MI/FE/CH/PS/PT/TC/DC

Semester : Third

Subject Title : Development of Life Skills-II

Subject Code : 12041

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	02	--	--	--	25#	25@	50

Rationale:

In today's competitive world, the nature of organizations is changing at very rapid speed. In this situation the responsibility of diploma holder is not unique. He will be a part of a team in the organization. As such the individual skills are not sufficient to work at his best.

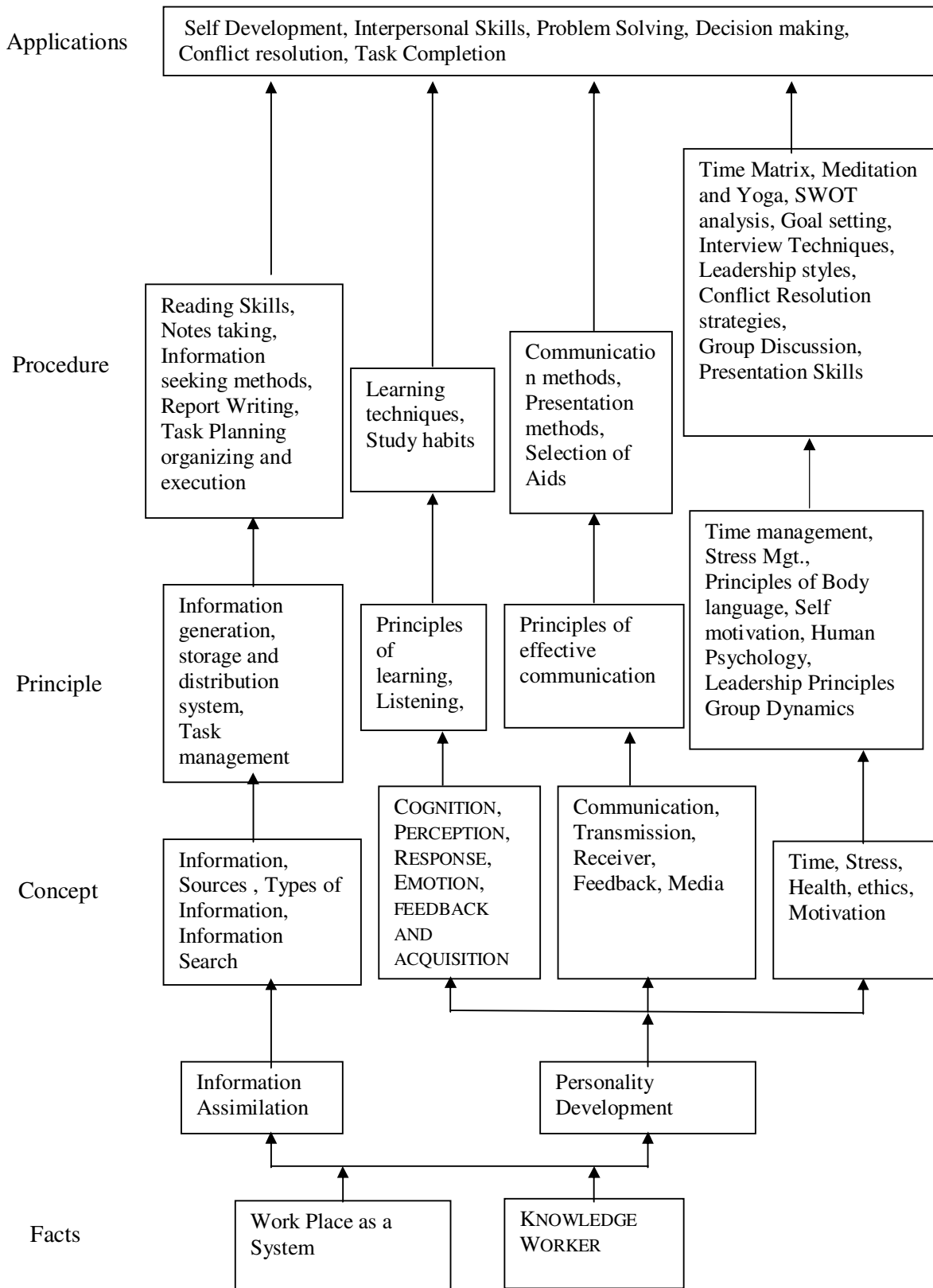
This subject will develop the student as an effective member of the team. It will develop the abilities and skills to perform at highest degree of quality as an individual as well as a member of core group or team. Such skills will enhance his capabilities in the field of searching, assimilating information, managing the given task, handling people effectively, solving challenging problems.

THE SUBJECT IS CLASSIFIED UNDER HUMAN SCIENCE.

Objectives: THE STUDENTS WILL BE ABLE TO:

1. Developing working in teams.
2. Apply problem solving skills for a given situation.
3. Use effective presentation techniques.
4. Apply techniques of effective time management.
5. Apply task management techniques for given projects.
6. Enhance leadership traits.
7. Resolve conflict by appropriate method.
8. Survive self in today's competitive world.
9. Face interview without fear.
10. Follow moral and ethics.
11. Convince people to avoid frustration.

LEARNING STRUCTURE:



Contents: Theory

Topic	Contents	HOURS
01	SOCIAL SKILLS Society, Social Structure, Develop sympathy and empathy.	01
02	Swot Analysis – Concept, How to make use of SWOT.	01
03	Inter personal Relation Sources of conflict, Resolution of conflict , Ways to enhance interpersonal relations.	02
04	Problem Solving I) STEPS IN PROBLEM SOLVING, 1) Identify and clarify the problem, 2) Information gathering related to problem, 3) Evaluate the evidence, 4) Consider alternative solutions and their implications, 5) Choose and implement the best alternative, 6) Review II) Problem solving technique. (any one technique may be considered) 1) Trial and error, 2) Brain storming, 3) Lateral thinking	02
05	Presentation Skills Body language -- Personal Grooming and Dress Code Posture, Gestures, Eye contact and facial expression. PRESENTATION SKILL – Stage Confidence Voice and language - Volume, Pitch, Inflection, Speed, Pause Pronunciation, Articulation, Language, Practice of speech. Use of aids - OHP, LCD projector, white board	03
06	Group discussion and Interview technique – Introduction to group discussion, Ways to carry out group discussion, Parameters - Contact, body language, analytical and logical thinking, decision making INTERVIEW TECHNIQUE Necessity, Tips for handling common questions.	03
07	Working in Teams Understand and work within the dynamics of a groups. Tips to work effectively in teams, Establish good rapport, interest with others and work effectively with them to meet common objectives, Tips to provide and accept feedback in a constructive and considerate way, Leadership in teams, Handling frustrations in group.	02

08	Task Management Introduction, Task identification, Task planning ,organizing and execution, Closing the task	02
Total		16

List of Assignment: (any eight assignments)

- 1) SWOT analysis:- Analyse yourself with respect to your strength and weaknesses, opportunities and threats. Following points will be useful for doing SWOT.
 - a) Your past experiences,
 - b) Achievements,
 - c) Failures,
 - d) Feedback from others etc.
- 2) Undergo a test on reading skill/memory skill administered by your teacher.
- 3) Solve the puzzles.
- 4) Form a group of 5-10 students and do a work for social cause e.g. tree Plantation, blood donation, environment protection, camps on awareness like importance of cleanliness in slum area, social activities like giving cloths to poor etc. (One activity per group)
- 5) Deliver a seminar for 10-12 minutes using presentation aids on the topic given by your teacher.
- 6) Watch/listen an informative session on social activities. Make a report on topic of your interest using audio/visual aids. Make a report on the programme
- 7) Conduct an interview of a personality and write a report on it.
- 8) Discuss a topic in a group and prepare minutes of discussion. Write thorough description of the topic discussed
- 9) Arrange an exhibition, displaying flow-charts, posters, paper cutting, photographs etc on the topic given by your teacher.

Note: - Please note that these are the suggested assignments on given contents/topic. These assignments are the guide lines to the subject teachers. However the subject teachers are free to design any assignment relevant to the topic. The **term work** will consist of any eight assignments.

MINI PROJECT ON TASK MANAGEMENT. DECIDE ANY TASK TO BE COMPLETED IN A STIPULATED TIME WITH THE HELP OF TEACHER. WRITE A REPORT CONSIDERING VARIOUS STEPS IN TASK MANAGEMENT.

Learning Resources:**Books:**

Sr. No	Title of the book	Author	Publisher
1	Adams Time Management	Marshall Cooks	Viva Books
2	Basic Managerial Skills for All	E.H. Mc Grath , S.J.	Pretice Hall of India, Pvt Ltd

3	Body Language	Allen Pease	Sudha Publications Pvt. Ltd.
4	Creativity and problem solving	Lowe and Phil	Kogan Page (I) P Ltd
5	Decision making & Problem Solving	by Adair, J	Orient Longman
6	Develop Your Assertiveness	Bishop , Sue	Kogan Page India
7	Make Every Minute Count	Marion E Haynes	Kogan page India
8	Organizational Behavior	Steven L McShane and Mary Ann Glinow	Tata McGraw Hill
9	Organizational Behavior	Stephen P. Robbins	Pretice Hall of India, Pvt Ltd
10	Presentation Skills	Michael Hatton (Canada – India Project)	ISTE New Delhi
11	Stress Management Through Yoga and Meditation	--	Sterling Publisher Pvt Ltd .
12	Target setting and Goal Achievement	Richard Hale ,Peter Whilom	Kogan page India
13	Time Management	Chakravarty, Ajanta	Rupa and Company
14	Working in Teams	Harding ham .A	Orient Longman

Internet Assistance:

1. <http://www.mindtools.com>
2. <http://www.stress.org>
3. <http://www.ethics.com>
4. <http://www.coopcomm.org/workbook.htm>
5. <http://www.mapfornonprofits.org/>
6. <http://www.learningmeditation.com> <http://bbc.co.uk/learning/courses/>
7. <http://eqi.org/>
8. <http://www.abacon.com/commstudies/interpersonal/indisclosure.html>
9. <http://www.mapnp.org/library/ethics/ethxgde.htm>
10. http://www.mapnp.org/library/grp_cnfl/grp_cnfl.htm
11. <http://members.aol.com/nonverbal2/diction1.htm>
12. http://www.thomasarmstron.com/multiple_intelligences.htm
13. <http://snow.utoronto.ca/Learn2/modules.html>
14. <http://www.quickmba.com/strategy/swot/>

Course Name : Civil Engineering Group
Course Code : CE/CS/CR/CV
Semester : Third
Subject Title : Professional Practices-III
Subject Code : 12040

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
--	--	05	--	--	--	--	50@	50

Rationale:

Most of the diploma holders join industries. Due to globalization and competition in the industrial and service sectors the selection for the job is based on campus interviews or competitive tests.

While selecting candidates a normal practice adopted is to see general confidence, attitude and ability to communicate and attitude, in addition to basic technological concepts.

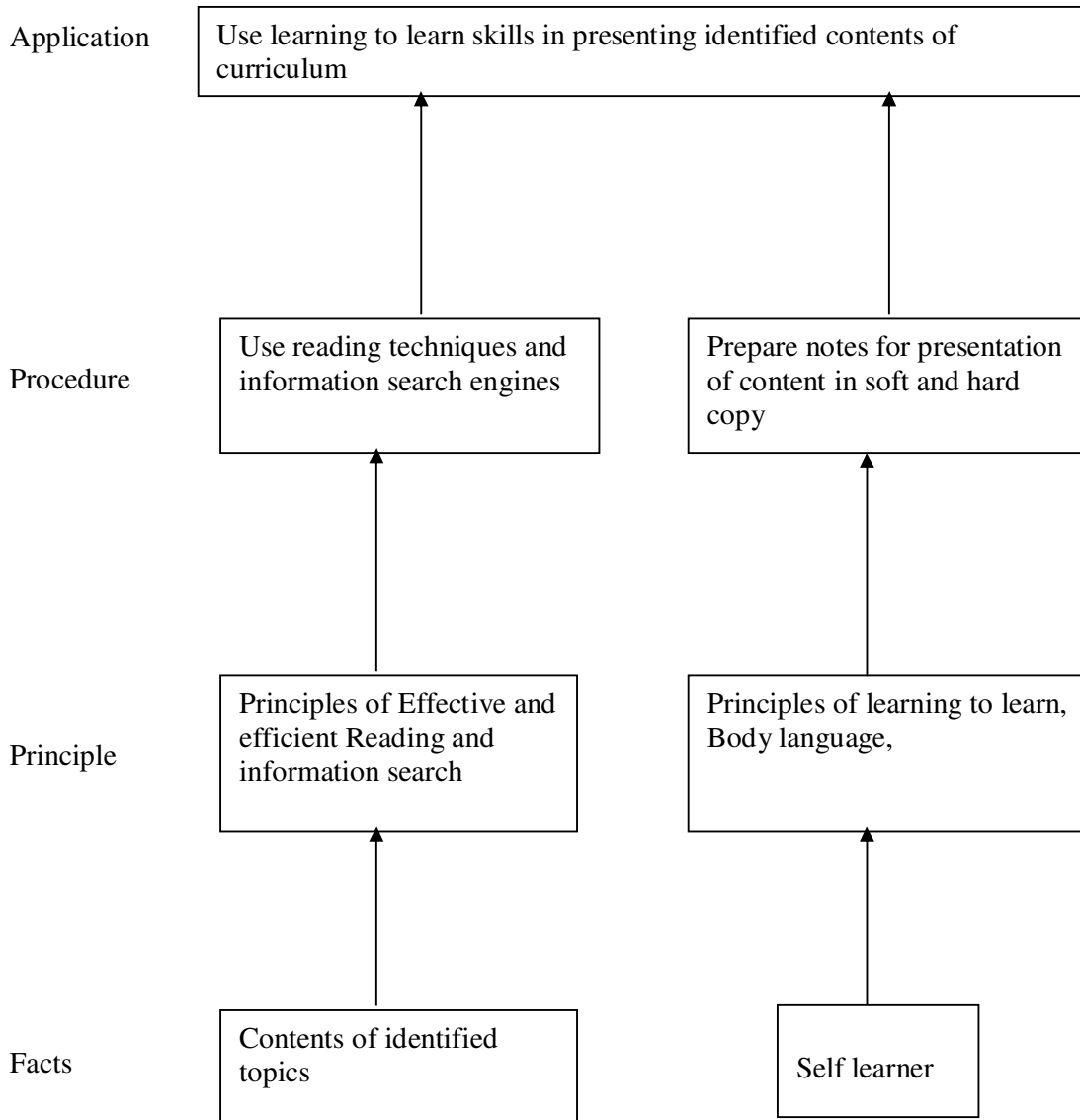
The purpose of introducing professional practices is to provide opportunity to students to undergo activities which will enable them to develop confidence. Industrial visits, expert lectures, seminars on technical topics and group discussion are planned in a semester so that there will be increased participation of students in learning process.

Objectives:

Student will be able to:

1. Acquire information from different sources.
2. Prepare notes for given topic.
3. Present given topic in a seminar.
4. Interact with peers to share thoughts.
5. Prepare a report on industrial visit, expert lecture.

Learning Structure:



Activity	Name of the Activity	Hours
1	<p>Field Visits</p> <p>Structured field visits (minimum three) be arranged and report of the same should be submitted by the individual student, to form a part of the term work.</p> <p>The field visits may be arranged in the following areas / industries :</p> <ul style="list-style-type: none"> i) Completed Residential/Public building for planning principles ii) Residential/Public building under construction for sub /super structure detailing iii) Civil engineering structure during concreting work iv) Residential/Public building for finishing items. vi) Cement/lime manufacturing unit 	24
02	<p>Lectures by Professional / Industrial Expert to be organized from of the following areas (any three)</p> <ul style="list-style-type: none"> i) Quality in construction ii) New trends for built environment iii) Software for drafting iv) Low cost housing v) Building Bye laws vi) Body language vii) Interview Technique 	20
03	<p>Seminar :</p> <p>Any one seminar on the topics suggested below:</p> <p>Students (Group of 4 to 5 students) has to search /collect information about the topic through literature survey, visits and discussions with experts/concerned persons:</p> <p>Students will have to submit a report of about 10 pages and deliver a seminar for 10 minutes.</p> <ul style="list-style-type: none"> 1. Problems of drinking water in rural area 2. Gram Swaraj Yojana 3. Pani Panchayat Yojana for equal distribution of water 4. New trends in concrete technology. 5. Formwork, centering and scaffolding 6. Advanced materials of construction. 	16
04	<p>Market Survey:</p> <p>A group of four students is expected to collect information from the market regarding specifications and cost of any four items, used in building construction such as plumbing accessories, Floor tiles, Fasteners, Paints, Door panels etc. and submit a report on comparative study.</p>	20
Total		80