Enclosure to Item No. 4.16
27.5.2009

UNIVERSITY OF MUMBAI

Revised Syllabus for the
Third Year Civil Engineering
(Semester V & VI)

(With effect from the academic year 2009-2010)

UNIVERSITY OF MUMBAI
SCHEME OF INSTRUCTIONS AND EXAMINATION
(RR-2007)

THIRD YEAR ENGINEERING: (Civil Engineering)

Semester V

	Subjects	No. of periods per week (60 minutes each)			Duration of theory paper (hours)	Marks				
		Lecture	Practical	Tutorial		Theory Paper	Term Work	Practical	Oral	Total
1.	Structural Analysis-II*	4	-	2	3	100	25	-	25	150
2.	Geotechnical Engineering-I*	4	2	-	3	100	25	25	-	150
3.	Building Design and Drawing-II*	2	3	-	4	100	50	25@	-	175
4.	Applied Hydraulics-I	4	2	-	3	100	25	-	-	125
5.	Transportation Engineering-I *	4	-	2	3	100	25	-	-	125
6.	Entrepreneurship and Management	3	-	2	3	100	25	-	-	125
	Total	21	7	6	-	600	175	50	25	850

* Common to Construction Engineering. @ Oral and sketching

Semester – VI

	Subjects	No. of periods per week (60 minutes each)			Duration of theory paper (hours)	Marks				
		Lecture	Practical	Tutorial		Theory Paper	Term Work	Practical	Oral	Total
1.	Geotechnical Engineering-II *	4	2	-	3	100	25	-	25	150
2.	Design & Drawing of Steel Structures	4	-	2	4	100	25	-	25@	150
3.	Applied Hydraulics-II	3	2	-	3	100	25	-	25	150
4.	Transportation Engineering-II*	4	2	-	3	100	25	-	25	150
5.	Environmental Engineering-I	4	2	-	3	100	25	-	-	125
6.	Theory of Reinforced and Prestressed Concrete	4	-	2	3	100	25	-	-	125
	Total	23	8	4	-	600	150	-	100	850

* Common to Construction Engineering @ Oral and sketching

Class:-T E (Civil/Construction.)			Semester V
Subject:-Structural Analysis - II			
Periods/week – each Period of 60 minutes duration	Lecture	04	
	Practical	-	
	Tutorial	02	
		Hours	Marks
Evaluation System	Theory Examination	03	100
	Practical	-	-
	Oral	-	25
	Term Work	-	25
	Total		**150**

Detailed Syllabus

Module	Topics	No. of Lectures
1	General Types of structures occurring in practice and their classification. Stable and unstable structure, statical and kinematical determinacy and indeterminacy of structure. Symmetric structure, symmetrical and anti-symmetrical loads, distinction between linear and non-linear behaviour of material and geometric non-linearity.	06
2	Deflection of statically determinate structures: Review of general theorems based on virtual work and energy methods, introduction to the concept of complimentary energy, absolute and relative deflections caused by loads, temperature changes and settlement of supports, application to beams, pin jointed frames and rigid jointed frames.	06
3	Analysis of indeterminate structures by flexibility method: Flexibility coefficients and their use in formulation of compatibility equations. Theorem of three moments, Castigliano's theorem of least work, application of above methods to propped cantilevers, fixed beams, continuous beams. Simple pin jointed frames including effect of lack of fit for members. Simple rigid jointed frames and two hinged parabolic arches.	14
4	Analysis of indeterminate structures by stiffness method: Stiffness coefficients for prismatic members and their use for formulation of equilibrium equations, direct stiffness method, slope deflection method, Moment distribution method. Application of the above methods to indeterminate beams and simple rigid jointed frames, rigid jointed frames with inclined member but having only one translational degree of freedom in addition to rotational degree of freedom including the effect of settlement of supports.	14
5	Introduction to plastic analysis of steel structures: Concept of plastic hinge and plastic moment carrying capacity, shape factor, determination of collapse load for single and multiple span beams.	08

Theory Examination:-

1. Question paper will consist of total seven questions carrying 20 marks each.
2. Only five questions need to be attempted.
3. Question number 1 will be compulsory and based on maximum part of the syllabus.
4. Remaining questions will be mixed in nature.
5. In question paper, weightage of each module may be proportional to the number of respective lecture hours as mentioned in the syllabus.

Oral Examination:-
Oral examination will be based on entire syllabus.

Term work:-
Each student has to appear for at least one written test during the term. At least 20 (twenty) solved problems based on the above syllabus and the graded answer paper of term test shall be submitted as term work. At least ten out of the 20 solved problems have to be validated by using available computer software.

The distribution of term work marks will be as follows:

Assignments	:	10 marks
Written test (at least one)	:	10 marks
Attendance (Theory & Tutorial)	:	05 marks

The final certification and acceptance of term work ensures the satisfactory performance of tutorial work and at least minimum passing in the term-work.

Recommended Books:-

1. Basic Structural Analysis: Reddy C.S., Tata McGraw hill.
2. Matrix Method in Structural Analysis: Pandit and Gupta, Tata McGraw hill.
3. Structural Analysis, Vol II: Junnarkar S.B. Charotar Publishers.
4. Modern Methods in Structural Analysis: Dr. B.N. Thadani and Dr. J. P.Desai, Weinall Book Corporation.
5. Intermediate Structural Analysis: Wang C.K., Tata McGraw hill.
6. Analysis of Framed Structures: Gere and Weaver, East-West Press.
7. Structural Analysis Vol.I and Vol. II: Pandit and Gupta, Tata McGraw hill.
8. Structural Analysis: L.S. Negi and R. S. Jangid, Tata McGraw hill.
9. Structural Analysis, A unified approach: Prakash Rao D.S., University press.
10. Matrix Methods of Structural Analysis: Dr. A. S. Meghre, S. K. Deshmukh, Charotar Publishing House.
11. Structural Analysis: Chajes A., Prentice Hall

Class:-T E (Civil/Construction.)			Semester V
Subject:-Geotechnical Engineering – I			
Periods/week – each Period of 60 minutes duration	Lecture	04	
	Practical	02	
	Tutorial	-	
		Hours	Marks
Evaluation System	Theory Examination	03	100
	Practical	-	25
	Oral	-	-
	Term Work	-	25
	Total		150

Detailed Syllabus

Module	Topics	No. of Lectures
1.	Introduction i Definitions: soils, soil mechanics, soil engineering, rock mechanics. ii Geotechnical Engg: scope of soil engineering, comparison between soil & rock.	01
2.	Basic definitions & relationship i Soil as three phase system in terms of weight, volume, void ratio, porosity. ii Definitions: moisture content, unit weights, degree of saturation, void ratio, porosity, specific gravity, mass specific gravity etc. Relationship between volume-weight, void ratio-moisture content, unit weight-percent air voids, saturation-moisture content, moisture content-specific gravity etc. iii Determination of various parameters such as moisture content by oven dry method, pycnometer, sand bath method, torsional balance method, radio activity method, alcohol method. iv Specific gravity by density bottle method, pycnometer method, measuring flask method. v Unit weight by water displacement method, submerged weight method, core cutter method, sand replacement method.	09
3.	Plasticity characteristics of soil i Introduction to definitions of: plasticity of soil, consistency limits - liquid limit, plastic limit, shrinkage limit, plasticity, liquidity and consistency indices, flow & toughness indices, definitions of activity and sensitivity. ii Determination of: liquid limit, plastic limit, shrinkage limit iii Use of consistency limits.	05
4.	Classification of soils i Introduction of soil classification: particle size classification, textural classification, unified soil classification, Indian standard soil classification system ii Identification: field identification of soils, general characteristics of soils in different groups.	03

5.	Permeability of soils i Introduction to hydraulic head, Darcy's law , validity of Darcy's law ii Determination of coefficient of permeability, Laboratory methods: constant head method, falling head method, Field methods: pumping-in test, pumping-out test iii Permeability aspects: permeability of stratified soils, factors affecting permeability of soil.	05
6.	Seepage analysis Introduction, stream and potential functions, characteristics of flow nets, graphical method to plot flow nets, use of flow nets.	03
7.	Effective stress principle i Introduction, effective stress principle, nature of effective stress, effect of water table ii Fluctuation of effective stress, effective stress in soils saturated by capillary action, seepage pressure, quick sand condition.	03
8.	Compaction of soils i Introduction, theory of compaction, laboratory determination of optimum moisture content and maximum dry density. ii Compaction in the field, compaction specification and field control.	02
9.	Consolidation of soils Introduction, comparison between compaction & consolidation, initial, primary & secondary consolidation, spring analogy for primary consolidation, consolidation test results, basic definitions, Terzaghi's theory of consolidation, final settlement of soil deposits, consolidation settlement: one-dimensional method, secondary consolidation.	07
10.	Shear strength Principal planes parallel to the coordinate axes, Mohr's circle, important characteristics of Mohr's circle, Mohr-Coulomb theory, types of shear tests, direct shear test, merits of direct shear test , tri-axial compression tests, test behaviour of UU, CU and CD tests, relation between major and minor principal stresses, unconfined compression test, vane shear test.	05
11.	Soil exploration Introduction, methods of investigation, methods of boring, soil samplers and sampling, number and disposition of trial pits and borings, penetrometer tests, borehole logs, geophysical methods.	05

Theory Examination:-

1. Question paper will consist of total seven questions carrying 20 marks each.
2. Only five questions need to be attempted.
3. Question number 1 will be compulsory and based on maximum part of the syllabus.
4. Remaining questions will be mixed in nature.
5. In question paper weightage of each module may be proportional to the number of respective lecture hours as mentioned in the syllabus.

Practical Examination:-
Practical examination will be based on the experiments conducted.

List of practicals:- (at least ten to be performed)

1. Field density using core cutter method
2. Field density using sand replacement method
3. Natural moisture content using oven drying method
4. Field identification of fine-grained soils
5. Specific gravity of soil grains
6. Grain size distribution by sieve analysis
7. Grain size distribution by hydrometer analysis
8. Consistency limits by liquid limit
9. Consistency limits by plastic limit
10. Consistency limits by shrinkage limit
11. Permeability tests using constant test method
12. Permeability tests using falling head method
13. Compaction test: standard proctor test.
14. Compaction test: modified proctor test
15. Relative density

Term work:

Each student has to appear for at least one written test during the term
Report on experiments performed as detailed above, assignments including 15 problems based on the above syllabus (preferably 2 problems on each topic) and the graded answer paper of the term test shall be submitted as term work.

The distribution of term work marks will be as follows:

Reports of experiments performed and assignments	:	10 marks
Written test (at least one)	:	10 marks
Attendance (Theory & Practical)	:	05 marks

The final certification and acceptance of term work ensures the satisfactory performance of laboratory work and at least minimum passing in the term-work.

Recommended Books:

1. Soil Engineering in Theory and Practice: Alam Singh, CBS Publishers & Distributors, New Delhi.
2. Soil Mechanics and Foundation Engineering: V. N. S. Murthy, Saitech Publications.
3. Soil Mechanics and Foundation Engineering: K. R. Arora, Standard Publishers and Distributors, New Delhi.
4. Geotechnical Engineering: C. Venkatramaiah, New Age International.
5. Fundamentals of Soil Engineering: Taylor, D. W., John Wiley & Sons
6. An Introduction to Geotechnical Engineering: Holtz, R. D., Printice Hall, New Jersey
7. Soil Mechanics: Craig, R. F., Chapman & Hall
8. Soil Mechanics: Lambe T. W. & Whitman R.. V., John Wiley & Sons
9. Theoretical Soil Mechanics: K. Terzaghi, John Wiley & Sons
10. Relevant Indian Standard Specifications & Codes, BSI Publications, New Delhi.

Class:-T E (Civil/Construction.)			Semester V
Subject:-Building Design and Drawing – II			
Periods/week – each Period of 60 minutes duration	Lecture	02	
	Practical	03	
	Tutorial	-	
		Hours	Marks
Evaluation System	Theory Examination	04	100
	Practical (Sketching & Oral)	-	25
	Term Work	-	50
	Total	-	175

Detailed Syllabus

Module	Topics	No. of Lectures
1.	Planning & design of public buildings such as; i. Buildings for education: schools, colleges, institutions, libraries ii. Buildings for health: hospitals, health centers, dispensaries, maternity homes, sanatoriums iii. Industrial buildings iv. Buildings for entertainment: theatres, cinema halls, club houses, sports clubs v. Offices vi. Hostels, hotels, boarding houses, rest houses	9
2.	Architectural planning, massing and composition, concept of built environment and its application in planning	2
3.	Perspective drawing: one point and two point perspective	3
4.	Principles of modular planning, planning as recommended by National Building Organization	2
5.	Town planning: objectives and principles, master plan, road systems, zoning, green belt, slums	2
6.	Use of computers in building planning and designing.	2
7.	Understanding certification methods (TERI, LEEDS) for Green buildings.	3

Theory Examination:-

1. Question paper will consist of total seven questions carrying 20 marks each.
2. Only five questions need to be attempted.
3. Question number 1 will be compulsory and based on maximum part of the syllabus.
4. Remaining questions will be mixed in nature.
5. In question paper weightage of each module may be proportional to the number of respective lecture hours as mentioned in the syllabus.

Practical Examination (Oral & sketching):-

Practical examination will be based on the entire syllabus. The examination shall consist of drawing sketches and oral based on the entire syllabus.

Term Work:

Term work shall consist of at least three A1 (Imperial) size drawing sheets giving details of minimum two different types of public buildings. One building shall be planned in RCC framed structure and shall have ground plus at least one upper floor. Other building shall be planned as a load bearing single storied structure situated in rural area and has to be constructed with locally available materials.

The drawings should include following details: floor plans, elevation, typical section, roof plan, foundation plan, site plan, layout plan with drainage lines, and any other typical details.

The drawings should accompany a report with following details: description of site, plot area, FSI statement, finer points in architectural planning and brief description of items of construction.

The report should also include at least two A1 size sheets with sketches giving details of some elements of the buildings drawn in AUTOCAD or similar software.

The distribution of term work marks will be as follows:

Drawings	:	25 marks
Report on planning and design of buildings	:	10 marks
Written test (at least one)	:	10 marks
Attendance (Theory and Practical)	:	05 marks

The final certification and acceptance of term work ensures the satisfactory performance of practical work and at least minimum passing in the term work.

Recommended Books:

1. Building Drawing: M.G. Shah, C.M. Kale, S.Y. Patil, Tata McGraw Hill, Delhi.
2. Civil Engineering Drawing: M. Chakraborty, Monojit Chakraborty Publication, Kolkata.
3. Building Drawing and Detailing: BTS Prabhu, K.V. Paul and C. Vijayan, SPADES Publication, Calicat.
4. Planning and Designing Buildings: Y.S. Sane, Modern Publication House, Pune.

Class:-T E (Civil)			Semester V
Subject:-Applied Hydraulics – I			
Periods/week – each Period of 60 minutes duration	Lecture	04	
	Practical	02	
	Tutorial	-	
		Hours	Marks
Evaluation System	Theory Examination	03	100
	Practical	-	-
	Oral	-	-
	Term Work	-	25
	Total		125

Detailed Syllabus

Module	Topics	No. of Lectures
1.	Dynamics of Fluid Flow: Momentum principle (applications: Force on plates, pipe bends) and moment of momentum equation (applications: sprinkler)	6
2.	Dimensional Analysis: Dimensional homogeneity, Buckingham's π theorem, Rayleigh's method, dimensionless groups, similitude, model studies, distorted & undistorted models.	8
3.	Impact of jets and jet propulsion: Jet striking- stationary, moving, inclined and perpendicular flat plates, hinged flat plates, impact on stationary curved vane, series of curved vanes, jet propulsion of ships.	8
4.	Turbines: General layout of hydro-electric power plant, heads and efficiencies of turbine, classification, Pelton wheel, reaction turbine, Francis turbines, Kaplan turbine, draft tube theory, specific speed, unit quantities, characteristics curves, Governing of turbines, cavitations.	12
5.	Centrifugal pumps: Work done, heads and efficiencies, minimum speed series and parallel operation. Multistage pumps, specific speed, model testing, priming, characteristic curves, cavitation.	9
6.	Hydraulics machinery: Hydraulic ram, press, accumulator, intensifier, crane and lift	5

Theory Examination:-

1. Question paper will consist of total seven questions carrying 20 marks each.
2. Only five questions need to be attempted.
3. Question number 1 will be compulsory and based on maximum part of the syllabus.
4. Remaining questions will be mixed in nature.
5. In question paper weightage of each module may be proportional to the number of respective lecture hours as mentioned in the syllabus.

List of Practicals:- (at least six to be performed)

1. Impact of jet on flat plate
2. Impact of jet on flat inclined plate
3. Impact of jet on curved plate
4. Performance of Pelton wheel – full gate opening
5. Performance of Pelton wheel – half gate opening
6. Performance of Centrifugal pumps
7. Performance of Kaplan turbine
8. Performance of Francis turbine
9. Hydraulic ram
10. Pumps in series
11. Pumps in parallel

Term Work:

Each student has to appear for at least one written test during the term. Report on experiments performed as detailed above, assignments including 15 problems based on the above syllabus and the graded answer paper for the term test shall be submitted as term work.

The distribution of term work marks will be as follows:

Report on experiments and assignments	:	10 marks
Written test (at least one)	:	10 marks
Attendance (Theory & Practical)	:	05 marks

The final certification and acceptance of term work ensures the satisfactory performance of laboratory work and at least minimum passing in the term work.

Recommended Books:

1. Hydraulics and Fluid Mechanics: Modi P.M. and Seth S.M., Standard Book House
2. Theory and Applications of Fluid Mechanics: Subramanaya K., Tata McGraw Hill.
3. Fluid Mechanics: Dr. Jain A.K., Khanna Publishers.
4. Fluid Mechanics: Nagarathnam S., Khanna Publishers.
5. Flow in Open Channels: Subramanya K., Tata McGraw Hill.

Class:-T E (Civil/Construction.)			Semester V
Subject:-Transportation Engineering - I			
Periods/week – each Period of 60 minutes duration	Lecture	04	
	Practical	-	
	Tutorial	02	
		Hours	Marks
Evaluation System	Theory Examination	03	100
	Practical	-	-
	Oral	-	-
	Term Work	-	25
	Total		125

Detailed Syllabus

Module	Topics	No. of Lectures
01	Introduction: Role of transportation in Society, objectives of transportation system, different types of modes, planning & coordination of different modes for Indian conditions.	04
02	Railway Engineering i Merits of rail transportation, railway gauges and problems due to non uniformity of gauges. ii Cross section of permanent way and track components, sleeper – functions and types, sleeper density, ballast functions and different ballast materials. iii Rails: coning of wheels and tilting of rails, rail cross sections, wear and creep of rails, rail fastenings. iv Geometrics: gradients, transition curves, widening of gauge on curves, cant and cant deficiency. v Points and crossing: design of turnouts, description of track junctions, different types of track junctions. vi Yards: details of different types of railway yards and their functions. vii Signalling and interlocking: classification of signals, interlocking of signals and points, control of train movement. viii Construction and maintenance of railway track, methods of construction, material requirements, maintenance of tracks and traffic operations. ix Modernization of track and railway station for high speed trains special measures for high speed track.	16
03	Airport Engineering i Aircraft component parts and its function, aircraft characteristics and their influence on airport planning. ii Airport planning: topographical and geographical features, existing airport in vicinity, air traffic characteristics, development of new airports, factors affecting airport site selection. iii Airport obstruction: zoning laws, classification of obstructions, imaginary surfaces, approach zones, turning zones. iv Airport layout: runway orientation, wind rose diagrams, basic runway length, corrections for runway length, airport classification, geometric design, airport capacity, runway configuration, taxiway design, geometric standards, exit taxiways, holding aprons, location of terminal buildings, aircraft hangers and parking.	24

	v Airport marking and lighting marking and lighting of runways, taxiway, approach and other areas. vi Terminal area & airport layout: terminal area, planning of terminal buildings, apron: size of gate position, number of gate position, aircraft parking system, hanger, general planning considerations and blast considerations. vii Air traffic control: Air traffic control aids, en-route aids, landing aids. viii Airport drainage: requirement of airport drainage, design data, surface drainage design. ix Airport airside capacity and delay: runway capacity and delays, practical hourly capacity, practical annual capacity, computation of runway system, runway gate capacity, taxiway capacity. x Air traffic forecasting in aviation: forecasting methods, forecasting requirement and applications.	
4.	Introduction of water transportation system, harbors and docks, port facilities.	04

Theory Examination:-

1. Question paper will consist of total seven questions carrying 20 marks each.
2. Only five questions need to be attempted.
3. Question number 1 will be compulsory and based on maximum part of the syllabus.
4. Remaining questions will be mixed in nature.
5. In question paper weightage of each module may be proportional to the number of respective lecture hours as mentioned in the syllabus.

Term Work:

Each student has to appear for at least one written test during the term. Report on 10 assignments (including numerical problems and layout sketches) and the graded answer paper for the term test shall be submitted as term work.

The distribution of term work marks will be as follows:

Reports of assignments	:	10 marks
Written test (at least one)	:	10 marks
Attendance (Theory & Tutorial)	:	05 marks

The final certification and acceptance of term work ensures the satisfactory performance of tutorial work and at least minimum passing in the term-work.

Recommended Books:

1. A Course of Railway Engineering: Saxena S C and Arora S P, Dhanpat Rai and Sons, New Delhi.
2. Airport Planning and Design: Khanna & Arora, Nemchand Bros, Roorkee
3. Indian Railway Track: Agarwal M. M., Suchdeva press New Delhi.
4. Docks and Harbour Engineering: Bindra S P, Dhanpat Rai and Sons
5. Harbour, Dock and Tunnel Engineering: R Shrinivas, Chrotar Publishing House
6. A Text Book on Highway Engineering and Airports: Sehgal S E, Bhanot K L, S. Chand & Co.
7. Planning and Design of Airport: Horonjeff and Mckelrey, Tata McGraw Hill.
8. Design & Construction of Ports and Marine Structures: Quinn A D, Tata McGraw Hill.
9. Airport Engineering: Rao G V, Tata McGraw Hill

Class:-T E (Civil)			Semester V
Subject:-Entrepreneurship and Management			
Periods/week – each Period of 60 minutes duration	Lecture	03	
	Practical	-	
	Tutorial	02	
		Hours	Marks
Evaluation System	Theory Examination	03	100
	Practical	-	-
	Oral	-	-
	Term Work	-	25
	Total		125

Detailed Syllabus

Module	Topics	No of Lectures
1.	Definitions of entrepreneurship, concept of entrepreneur and entrepreneurship, characteristics of entrepreneurship, an ideal entrepreneur	03
2.	The entrepreneurial culture Aspects of entrepreneurship, environment for entrepreneurship, culture: elements of culture, business culture and culture of society, entrepreneurial culture, cultural change, socio-economic origins of entrepreneurship, barriers to entrepreneurship, factors affecting entrepreneurship	04
3.	Classification and types of entrepreneurship Classification depending on type of business, technology, motivation, growth, stages of development	04
4.	Entrepreneurial traits and motivation Entrepreneurial initiative, characteristics of an entrepreneur, qualities of an entrepreneur, entrepreneurial skills, entrepreneurship: sources of supply & motivation, Growth of entrepreneurs, entrepreneurial functions	05
5.	Project development Project: stages of project, project development cycle, life cycle of project, ISO certification & its importance, search for an idea, preliminary screening, project identification, project Formulation, SWOT analysis, project report. Project appraisal: market, technical, financial, economical, social, ecological, organizational. Tools of analysis: time value of money, compounding & discounting, break-even analysis, payback period, net present value, social cost-benefit analysis Sources & types of finance	06
6.	Present scenario of Indian industry and entrepreneurs, government policies promoting entrepreneurship, institutions in aid of entrepreneurs, finance for entrepreneurs, sources and types of finance, small scale industries related to civil engineering, steps for starting a small scale industry, safety rules & regulations for construction industries, selection of type of own organization, ownership types: sole proprietorship, partnership, private company, public limited company	05

7.	Project accounting: generally accepted accounting principles, book keeping, double entry system and ledger, preparation of income statement and balance sheet	04
8.	Management: concept of management, objectives, basic functions of management, emergence of management thought, brief description of contributions by Fredrick Taylor, Henry Fayol, Elton Mayo and Gilbreth, Principles of organization, forms of organization: line, line & staff, functional and matrix	05

Theory Examination:-

1. Question paper will consist of total seven questions carrying 20 marks each.
2. Only five questions need to be attempted.
3. Question number 1 will be compulsory and based on maximum part of the syllabus.
4. Remaining questions will be mixed in nature.
5. In question paper weightage of each module may be proportional to the number of respective lecture hours as mentioned in the syllabus.

Term work

Each student has to appear for at least one written test during the term. At least 10 (ten) assignments based on above syllabus and the graded answer paper of term test shall be submitted as term work.

The distribution of term work marks will be as follows:

Reports of assignments	:	10 marks
Written test (at least one)	:	10 marks
Attendance (Theory and Tutorial)	:	05 marks

The final certification and acceptance of term work ensures the satisfactory performance of tutorial work and at least minimum passing in the term-work.

Recommended Books:

1. Projects: Preparation, Appraisal, Budgeting & Implementation: Prasanna Chandra, Tata Mc Graw Hill
2. Dynamics of Entrepreneurial Development & Management: Vasant Desai, Himalaya Publishing House
3. Management: Koontz, O'Donell & Weirich, McGraw Hill
4. Entrepreneurship: R. Hisrich & M. P. Peters, Tata Mc Graw Hill
5. Entrepreneurship Development, Colombo plan Staff College for Technical Education, Tata Mc Graw Hill
6. Finance Sense: Prasanna Chandra, Tata Mc Graw Hill