

CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

FEEDBACK ON CURRICULUM -2017-2018

ANALYSIS AND ACTION TAKEN REPORT

Structured feedbacks on curriculum are obtained from stakeholders. The suggestions are analyzed and corrective measures suggested by stakeholders are considered.

Sr. No.	Suggestions/Comments	Actions taken
1	Local Bye-laws and provisions of NBC should be included in Building Planning course.	The said suggestions were taken into consideration and put forth in BoS and included in the course "Building Planning, Materials & construction"
2	Topics related to brittle materials are not included which are often used in construction. e.g., glass	Stress Strain curve for brittle materials and deformation of tapering sections were added in SM considering their frequent application in civil engineering field.
3	Latest equipment such as Total Station and GPS to be introduced.	It was decided in the BoS meeting to be introduced in Surveying Lab Course.
4	Pavement Construction and maintenance topics to be included in Transportation Engineering	The said topics were included in the Transportation Course.



PROFESSOR & HEAD

Department of Civil Engineering
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GANDIPET, HYDERABAD-5000 075

BUILDING MATERIALS PLANNING & CONSTRUCTION

Instruction	3T+1D Hours per week
Duration of Semester End Examination	3 Hours
Semester End Examination	70 Marks
CIE	30 Marks
Credits	4

Course Objectives: To enable the student

1. To study about the basic building materials, properties and their applications.
2. To know the smart building materials, types of paints and varnishes.
3. To understand different types of masonries and their applications
4. To acquire concepts in building planning, arrangement of windows, doors, electrical and plumbing services.
5. To acquire ability to draw, plan, section, elevation of buildings with a flat/sloped roof.

Course outcomes:

At the end of the course the student is able

1. To identify various building materials and select suitable type for given situation.
2. To know different types of masonry, types of bonds used in construction of walls of buildings.
3. To know the different types of doors, windows, roofs, stair used in building works.
4. To plan suitable types of building for given requirement including arrangement of electrical and plumbing services.
5. To prepare plan, section and elevation of building with flat / sloped roof of client requirement.

UNIT-I:

Traditional Building Materials: Properties, Types, Applications and testing of traditional building materials, Mud, Stone, Timber & Brick, Cement Fly Ash Sand, Aggregate Mortar, Concrete and Steel.

UNIT-II:

Emerging Building Materials: Smart and Eco Friendly materials - Sustainable materials - Recycled materials.

Miscellaneous Materials: Paints, Varnishes and Distempers - Water proofing materials and other construction chemicals.

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STRENGTH OF MATERIALS - I

Instruction	3 Hours per week
Duration of Semester End Examination	3 Hours
Semester End Examination	70 Marks
CIE	30 Marks
Credits	3

Course Objectives: To enable the student

1. Understand the basic concept of the stress and strain and stress - strain behaviour of different materials.
2. Draw shear force and bending moment diagrams for statically determinate beams.
3. Understand bending stress and shear stress.
4. Comprehend compound stresses, direct and bending stresses in beams.
5. Analyze thin and thick cylinders for fluid pressure and/or shrink fit pressures and to analyze perfect frames by different methods.

Course Outcomes: At the end of the course the students are able to

1. Evaluate the strength of various Civil Engineering materials, against structural actions such as compression, tension, shear and bending.
2. To compute Shear force and Bending moment of statically determinate beams.
3. To suggest suitable material and sections from among the available, for use in Civil Engineering context.
4. To evaluate the behaviour and strength of Civil Engineering materials under the action of compound stresses and thus understand failure concepts.
5. To design thin and thick cylinders for resisting internal and external pressures and to evaluate forces in the members of truss / frames.

UNIT-I:

Simple Stresses and Strains: Various types of stresses and strains. Hooke's law, Modulus of Elasticity. Stress-Strain curve for ductile & brittle materials. Working stress and factor of safety. Deformation of bars of uniform, varying and tapering sections under axial loads. Elongation of bars due to self weight. Bars of uniform strength. Compound bars and temperature stresses. Statically indeterminate problems in tension and compression.


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SURVEYING

Instruction	4 Hours per week
Duration of Semester End Examination	3 Hours
Semester End Examination	70 Marks
CIE	30 Marks
Credits	4

Course Objectives :

1. To enable the student understand the basic principles of surveying and its role in civil engineering.
2. To make the student understanding about the levelling operations and methods of computations for finding areas and volumes.
3. To enable the student to get acquainted with simple angular measurements and understanding the operations of modern instruments like Total station and GPS instruments .
4. To make the student to know about the computation data required for setting curves like simple ,compound and reverse curves.
5. To enable the student to understand the role of transition curve and the data necessary for setting vertical curves.

Course out comes:

1. To use the instruments like chain, compass and plane table and gets an idea about the circumstances in which they can be used in field.
2. To know the methods of levelling along with developing of contours and use the contours in civil engineering related problems.
3. To get exposure to the modern instruments like Total station and GPS instruments.
4. To be in a position to set various horizontal curves .
5. To be able to compute the data required for setting vertical curve and able to understand the difference between transition curve and other horizontal curves.

UNIT1:

Principles of surveying, objectives of surveying and classifications of surveying, Basic principles of Chain surveying, types of chains and accessories required for chain surveying various lines used in chain survey, computation of areas using offsets, principles of compass survey, concepts of meridians, bearings and systems of measuring bearings and computations of angles from bearings. Principles of Plane table surveying accessories required for plane table survey, Radiation, intersection and concepts of resection.

UNIT-II:

Levelling : Concepts of levelling, terms used in levelling, reduction of levels, types of levelling, corrections in levelling, errors in levelling, Contours- definition, contour interval, characteristics, methods of contouring and interpolation and uses of contours, estimation of volumes using Trapezoidal and Simpson's method.

UNIT-III:

Theodolite- introduction, terms used , fundamental lines, uses ,traversing - types, checks, plotting, consecutive coordinates- Total coordinates, balancing of traverse, Gale's traverse table, Errors in theodolite survey, omitted measurements, Total station - working principle and its applications in surveying. Fundamental principles of tachometry, concepts of fixed hair method of tachometric survey. GPS survey - working principles, methods of GPS survey.

UNIT-IV:

Curves- types, designation of curves, terms used in curves, elements of curves, Angular methods of setting of simple curves, elements of reverse and compound curves.

UNIT-V:

Transition curves- principles, fundamental equation of transition curve , length of transition curves-arbitrary gradient, time rate, rate of change of radial acceleration, ideal transition curve- modified, cubic parabola and spiral curves. Vertical curves- types, chord gradient method and tangential correction methods of finding elevations.

Text Books:

1. C. Venkata Ramaiah, "A Text book of Surveying", University press, Hyderabad, 1997.
2. B.C. Punmia "Surveying vol. I and II", Laxmi Publications, 1994.

Suggested Reading:

1. T.P. Kanetker and S.V.Kulkarni Surveying and Levelling, PuneVidyarthi Gruha Prakashan, Pune,1994.
2. AM. Chadra, "Plane Surveying", New Age International", 2007.
3. Dr. K.R. Arora, "Surveying", Standard Book House, 2011.
4. R. Subramanyam, " Surveying and leveling", 2nd edition oxford university press, New Delhi.


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TRANSPORTATION ENGINEERING

Instruction	4 Hours per week
Duration of Semester End Examination	3 Hours
Semester End Examination	70 Marks
CIE	30 Marks
Credits	4

Course Objectives: To enable the student

1. Understand the design concepts of the highways, the quality of the materials required for the construction of highways and different techniques used in construction of flexible and rigid pavements.
2. Know how to collect the field data for the evaluation of traffic patterns.
3. To get an idea about the concepts of designing flexible and rigid pavements.
4. Know the requirements for designing the railway tracks and the material required for the construction of permanent way.
5. Get an idea for the planning of airports and fixing of run way orientation and also applying the various corrections.

Course Outcomes: At the end of the course, the student

1. Know how to apply various IRC Standards for the Geometric design of highways.
2. Applies the Pavement design concepts to different types of pavement and analyze the collected field data and carries out the process for design of traffic management techniques.
3. Takes precautions required for the execution of construction of pavements and applies relevant IRC standards.
4. Is able to apply the design concepts of super elevation of railway curves and knows the requirements for the permanent way.
5. Knows how to select a site for airport construction and also knows how to fix the run way orientation and the circumstances in which the corrections to the run way length are to be applied.

UNIT-I:

Highway alignment and geometric design: History of highway engineering, factors to be considered for highway alignment, engineering surveys, obligatory points. Geometric design - Highways classification as per IRC and its standard dimensions, carriageway, shoulders, medians, right of way, footpaths, cycle tracks, service roads, frontage roads, sight distance, stopping sight distance, overtaking sight distance. Camber,

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with effect from the academic year 2017-18

horizontal curves, super-elevation, transition curve, extra widening, gradient, grade compensation and design of vertical curves.

UNIT-II:

Traffic engineering: Objectives of traffic studies, traffic characteristics, volume, speed, density, headways and relationship among them. Traffic volume studies, speed and delay studies, intersection delay studies, highway capacity and level of service concept as per HCM 2000, origin and destination studies, intersection improvement studies at grade, need of grade separated intersections, channelization, rotary planning and design, concept of signal design, parking and accident studies.

UNIT-III:

Highway materials & Pavement design: Various properties of highway materials, pavement types, factors to be considered for pavement design, structural difference between flexible and rigid pavement design. Flexible pavement design - concept of layer theory, design wheel load, ESWL, EALF, vehicle damage factor, design by CBR developed by US corps of engineers, IRC cumulative standard axles method (IRC - 37: 2013). Rigid pavement design - concept, wheel load stresses analysis by Westergaard. Sub-grade, dry lean concrete, radius of relative stiffness. Modulus of sub grade reaction and other characteristics of concrete, critical wheel load and temperature stresses. Longitudinal and transverse joints, contraction joints, expansion joints, construction joints, dowel bars and tie bars functions.

UNIT-IV:

Railway Engineering: Introduction to Railways, permanent way component parts and its functions. Rails - various types, functions, creep in rails, creep measurement, coning of wheels and rail fixations. Sleepers - various types. merits and demerits, ballast, various types and sub grade preparation. Railway alignment and geometric design - alignment. super-elevation, negative super elevation, cant deficiency. Example problems. Points and crossing. Layout of left and right hand turnouts. Construction and maintenance of permanent way.

UNIT-V:

Airport engineering: Introduction to air transportation, history and international organizations role in development of airports, air craft types and its characteristics. General lay-out of an airport and its component parts. Site selection of an airport as per ICAO, orientation of runway by wind rose diagrams, basic runway length determination, corrections to basic runway length, geometric design, types of airports as per landing & take-off and dimensions.


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11/01/2018