

Sandip University

Neelam Vidya Vihar, Vill.: Sijoul. P.O. : Mailam, Dist.:Madhubani, Bihar -847235

Website : <http://www.sandipuniversity.edu.in>

Toll-Free No.- 1800-313-2714 Ph: 7549991044.

School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year: Third Year	Semester –VI
Course:- Reinforced Cement Concrete - II	Course Code:- CE601T
Theory:- 4 Hours/Week	Max. University Theory Examination:- 60 Marks
	Continuous Internal Assessment:- 40 Marks
Max. Time for Theory Exam:- 2.5 Hrs	Credit:- 4

Objectives:-

1	The course would begin with the basic concepts of RCC.
2	The student will be able to design bunker, silos, water tank, T-beam& Slab bridges of the building.
3	The student will be able to design of Multistory Buildings.

Unit Number	Details	Hours
1	Design of Multistory Buildings - Sway and non-sway buildings, Shear walls and other bracing elements.	8
2	Earth Retaining Structures: Cantilever and counter fort types retaining walls.	8
3	T-beam & Slab bridges- for highway loading (IRC Loads). Prestressing concepts materials, systems of prestressing & losses Introduction to working & limit State Design.	8
4	Water Tanks: Tanks on ground and underground tanks: Square, rectangular, circular tanks, Overhead tanks: square, rectangular, circular & Intz tanks.	8
5	Design of Silos and Bunkers	8
Total (Hrs)		40

Course Outcomes

Student Should able to :

CO1	Recognizes design of sway and non sway structures
CO2	Understand the importance of IRC loading in bridges
CO3	Be acquainted with about the design of Silos and bunkers

Resources

Recommended Books	<ol style="list-style-type: none">1. Plain & reinforced concrete - Ramamurtham2. Plain & reinforced concrete – B.C. Punmia
Reference Books	<ol style="list-style-type: none">1. R.C.C. by O.P. Jain Vol. II2. Essentials of Bridge engineering – D.J. Victor3. Bridge Engineering - Ponnuswamy4. Advanced R.C.C. Design by N.K. RAJU5. N.Krishna Raju, Prestressed Concrete, Tata Mc Graw Hill, New Delhi.6. Pre stresses concrete – T.Y. Lin
E-Resources	<ol style="list-style-type: none">1. http://nptel.ac.in/courses/105105104/pdf/m14137.pdf2. https://www.scribd.com/doc/78732661/Structural-Design-of-RCC-Bridge

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Energy Efficient & Green Building (Elective-I A)	Course Code:- CE602T
Theory: 3 Hours/Week	Max. University Theory Examination: 60 Marks
	Continuous Internal Assessment: 40 Marks
Max. Time for Theory Exam.: 2.5 Hrs	Credit: 3

Objectives:-

1	To enable students to deal with newer concepts of building construction
2	The course will enable a student to take up energy conscious design of building

Unit Number	Details	Hours
1	Energy efficient Green Buildings - The green Building concept, rating systems in India and world, GRIHA, LEED, etc. , green building rating agencies and some top green buildings in the world, sustainable practices used in the design and construction phases of Energy Efficient Green Buildings.	8
2	Energy Conscious Buildings - Climate and buildings in India, Introduction ,Factors affecting climate, Climatic zones and their characteristics, Implications of climate on building design ,Urban climate ,Microclimate, Tools for analyzing weather data, Illustrative example, References. Codes:	8
3	Principles of energy conscious design of buildings in India – Introduction Building Envelope, Site, Orientation, Building Configuration, Building Components, Passive Heating, Direct Gain ,Indirect Gain, Thermal storage wall, Roof top collectors, Isolated Gain, Solarium (Attached greenhouse / sunspace), Passive Cooling, Ventilation Cooling, Cross ventilation, Wind tower, Induced ventilation.	8
4	Thermal performance of buildings - Introduction, Heat Transfer, Solar Radiation, Simplified Method for Performance Estimation ;Example Computer-based Tools DESIGN GUIDELINES: Description of Buildings,	8

	Methodology, General Recommendations, Specific Guidelines.	
5	Zero Energy Buildings - Opportunities and challenges in designing a Net zero building ,Energy efficient solar homes/buildings, Design aspects ,Climatic zones ,Passive design features and ,. their advantages, Orientation of building, Sunshades, Window design, Double glazed windows Building insulation, Roof treatment ,Evaporative cooling ,Landscaping ,Surface to volume ratio Passive heating ,Earth air tunnel ,Solar chimney, Wind tower,.	8
Total (Hrs)		40

Course Outcomes

Student Should able to :

CO1	Understand about the sustainability
CO2	Gain the importance of Green building concepts
CO3	Know the thermal performance of the buildings

Resources

E-Resources	<ol style="list-style-type: none"> 1. http://nptel.ac.in/courses/120108004/module9/lecture12.pdf 2. https://onlinecourses.nptel.ac.in/noc18_ce06/preview
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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Repair and Rehabilitation of Structures (Elective-I B)	Course Code:- CE602T
Theory:- 3 Hours/Week	Max. University Theory Examination:- 60 Marks
	Continuous Internal Assessment:- 40 Marks
Max. Time for Theory Exam:- 2.5 Hrs	Credit:- 3

Objectives:-

1	To enable students to deal with concepts of repair and rehabilitation.
2	The course will enable a student to take up materials & methods of repair

Unit Number	Details	Hours
1	Deterioration of concrete in structures: physical processes of deterioration like F & T abrasion, erosion, pitting, chemical processes like carbonation, chloride ingress, corrosion, alkali aggregate reaction, sulphate attack; their causes, mechanism, effect, preventive measures. Cracks: Cracks in concrete, type, pattern, quantification, measurement & preventive measures etc.	8
2	N.D.T.: Non destructive test methods for concrete including rebound hammer, ultrasonic pulse velocity, rebar locator, corrosion meter, penetration resistance and pull out test, core cutting etc. Corrosion: Methods for corrosion measurement and assessment including half-cell potential and resistivity, Mapping of data.	8
3	Materials for repair: polymers and resins, self curing compound, FRP, Ferro cement etc; properties, selection criterion, bonding aspect.	8
4	Repair Techniques: grouting, jacketing, shotcrete, externally bonded plates and under water repair; materials, equipments, precautions process etc.	8
5	Investigation for structures: Distress, observation and preliminary test methods. Case studies: related to rehabilitation of bridge piers, dams, canals, heritage structures, corrosion damaged structures.	8
Total (Hrs)		40

Course Outcomes

Student Should able to :

CO1	Understands about the NDT tests
CO2	Gain the importance of the repairing techniques
CO3	Know how to investigation of structures

Resources

Recommended Books	1. Repair and Rehabilitation of Concrete Structures book by Poonam I. Modi, Chirag N. Patel 2. Rehabilitation of Concrete Structures book by Dr B Vidivelli
E-Resources	1. https://www.vidyarthiplus.com/vp/thread-24896.html 2. https://www.classle.net/org/icicourses/

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Solid Waste Management (Elective-I C)	Course Code:- CE602T
Theory:- 3 Hours/Week	Max. University Theory Examination:- 60 Marks
	Continuous Internal Assessment:- 40 Marks
Max. Time for Theory Exam:- 2.5 Hrs	Credit:- 3

Objectives:-

1	To enable students to deal with concepts of waste management.
2	The course will enable a student to take up problem & solution of solid waste.

Unit Number	Details	Hours
1	General: Problems associated with Solid Waste Disposal. Generation of Solid Waste: Goals and objectives of solid waste management, Classification of Solid Waste. Solid Waste Generation, Factors Influencing Generation of Solid Waste, Characteristics of Solid Waste, Analysis of Solid Waste	8
2	Onsite Handling, Storage and Processing: Public Health and Aesthetics, Onsite Handling, Onsite, Storage, Dust bins, Community Containers, Container Locations, On-site Processing Methods.	8
3	Solid Waste Collections, Transfer and Transport: Collection Systems, Equipment and Labor requirement, Collection Routes, Options for Transfer and Transport Systems.	8
4	Processing and Disposal Methods: Processing Techniques and Methods of Disposal, Sanitary land filling, Composting and Incineration, Bioremediation.	8
5	Recovery of Resources, Conversion, Products and Energy: Material Recovery, Energy Generation and Recovery Operation, Reuse in other industry. Industrial Solid Waste: Nature, Treatment and Disposal Methods.	8
Total (Hrs)		40

Course Outcomes

Student Should able to :

CO1	Apply environmental treatment technologies and design processes
CO2	Understands about the solid waste collections and its systems
CO3	Understands about the recovery of resources

Resources

Recommended Books	1.Solid Waste Management by by M.S. Bhatt and Asheref Illiyan
E-Resources	1. http://nptel.ac.in/courses/104103020/42

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Cost Effective & ECO-Friendly Construction (Elective-I D)	Course Code:- CE602T
Theory:- 3 Hours/Week	Max. University Theory Examination:- 60 Marks
	Continuous Internal Assessment:- 40 Marks
Max. Time for Theory Exam:- 2.5 Hrs	Credit:- 3

Objectives:-

1	To enable students to deal with newer concepts of building construction
2	The course will enable a student to take up techniques to minimize cost of construction

Unit Number	Details	Hours
1	<ul style="list-style-type: none"> ❖ Concepts of energy efficient & environment friendly materials and techniques. ❖ Cost effective materials:- Soil, Fly ash, Ferrocement, Lime, Fibres, Stone Dust, Red mud, Gypsum, Alternate Wood, Polymer. ❖ Energy Efficient & Environment friendly building material products :- <ol style="list-style-type: none"> 1. Walls - Stabilized and sun dried, soil blocks & bricks, Solid & Hollow concrete blocks, stone masonry blocks, Ferrocement partitions. 2. Roofs - Precast R.C. Plank & Joists roof, Precast channel roof, Precast L-panel roof, 3. Precast Funicular shells, Ferro cement shells, Filler Slab, Sessal Fibre roof, Improved country tiles, Thatch roof, M.C.R. tile. 	8
2	Cost effective construction techniques and equipments :- (a) Techniques:- Rat trap bond construction, Energy Efficient roofings, Ferro cement technique, Mud Technology. (b) Equipments :- Brick moulding machine, Stabilized soil block making machine and plants for the manufacturing of concrete blocks, M.C.R. tile making machine, Ferro cement wall panel & Roofing channel making machine, R.C.C. Chaukhat making m/c.	8
	Cost effective sanitation :- (a) Waste water disposal system (b) Cost effective	

3	sanitation for rural and urban areas (c) Ferro cement Drains	8
4	Low Cost Road Construction: - Cost effective road materials, stabilization, construction techniques tests, equipment used for construction, drainage, maintenance.	8
5	Cost analysis and comparison: - (a) All experimental materials (b) All experimental techniques	8
Total (Hrs)		40

Course Outcomes

Student Should able to :

CO1	Recognize the concepts of the energy efficient materials and environment
CO2	Understands the importance of the low cost road construction
CO3	Aware of the Cost analysis and comparison of all techniques

Resources

E-Resources	<ol style="list-style-type: none"> 1. https://www.slideshare.net/lstikore/eco-friendly-building-materials 2. http://businessfeed.sunpower.com/articles/explaining-what-is-green-building
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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Earthquake Resistant Design & Construction (Elective-I E)	Course Code:- CE602T
Theory:- 3 Hours/Week	Max. University Theory Examination:- 60 Marks
	Continuous Internal Assessment:- 40 Marks
Max. Time for Theory Exam:- 2.5 Hrs	Credit:- 3

Objectives:-

1	To enable students to deal with newer concepts of earthquake design
2	This course will enable a student to take up IS 4326:1993, IS 13920: 1993

Unit Number	Details	Hours
1	Introductory Seismology: Various terminologies related with earthquake, Causes of earthquake, plate tectonics, Tsunami. Seismic wave propagation. Magnitude, intensity & energy of earthquake, magnitude & intensity scales, classifications of earthquakes, Seismic zoning case histories of earthquakes. Seismic hazards, induced hazards.	8
2	Earthquake recording, Seismic instruments, Seismographs & Seismograms. Basic concept of liquefaction and isolation. Introduction to various IS related codes. Structural systems, Effects of earthquake on buildings in general, structural and nonstructural failures.	8
3	IS 4326: 1993: Planning consideration & architectural concept, provisions for earthquake resistant construction/ seismic strengthening of masonry constructions	8
4	Seismic performance of reinforced concrete buildings. Plan, elevation & stiffness irregularities & their effects. Typical earthquake damages of RC constructions, short column effect, soft storey effect, strong column-weak beam analogy. IS 13920: 1993:	8
5	Seismic design philosophy IS 1893 (part I):2002 codal provisions: Load combinations, Design lateral loads, response reduction factors, structural modeling of building frames and equivalent load method for earthquake analysis of multistory frames.	8
Total (Hrs)		40

Course Outcomes

Student Should able to :

CO1	Demonstrate the principles of earthquake loading
CO2	Quantify earthquake intensity and ground motion
CO3	Analyze and design seismic resistant foundation for buildings

Resources

Recommended Books	1.Chopra A.K., Dynamics of structures - Theory and Applications to Earthquake Engineering, Prentice Hall of India, New Delhi.
Reference Books	1. Berg G.V. Elements of Structural Dynamics, Prentice Hall of India, Englewood Cliffs, NJ 2. Paz Mario, Structural Dynamics, CBS Publishers, Delhi 4. Clough R.W. & Penzien J., Dynamics of structures McGraw Hill, New York
E-Resources	1. http://nptel.ac.in/syllabus/105101004/ 2. http://www.ucl.ac.uk/EarthSci/people/sammonds/17%20Earthquake%20engineering.pdf

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Hydraulics & Open Channel Flow	Course Code:- CE603T
Theory: 3 Hours/Week	Max. University Theory Examination: 60 Marks
	Continuous Internal Assessment: 40 Marks
Max. Time for Theory Exam.: 2.5 Hrs	Credit: 3

Objectives:-

1	To understand the concepts of fluid mechanics for undergraduate students in Civil Engineering.
2	The course will begin with the types of fluid flow and proceed to cover various flow phenomena.
3	The Course approaches to analyze the flow phenomena. Some important applications shall also be covered.

Unit Number	Details	Hours
1	Fluid Machines: Turbines:- Classifications, definitions, similarity laws, specific speed and unit quantities, Pelton turbine-their construction and settings Pumps: Various types of Pumps and their important components.	8
2	Uniform flow in open channels : Channel geometry and elements of channel section, velocity distribution, energy in open channel flow, specific energy, types of flow, critical flow and its computations, uniform flow and its computations, Chezy's and Manning's formulae.	8
3	Non uniform flow in open channels : Basic assumptions and dynamic equations of gradually varied flow, characteristics analysis and computations of flow profiles, rapidly varied flow hydraulic jump.	8
4	Fluid Mechanics, Boundary layer theory.	8
5	Turbulent flow: Laminar and turbulent boundary layers and laminar sub layer, hydro dynamically smooth and rough boundaries, velocity distribution in turbulent flow, resistance of smooth and artificially roughened pipes, commercial pipes, aging of pipes. Pipe flow problems.	8
Total (Hrs)		40

Course Outcomes	
Student Should able to :	
CO1	Determine the properties of fluid and pressure
CO2	Compute the frictional loss in laminar and turbulent flows
CO3	Know about various types of pumps and its uses

Resources	
Recommended Books	<ol style="list-style-type: none"> 1. Fluid Mechanics – K Subramanyam-TMH, Delhi 2. Open Channel Flow by Rangaraju - Tata Mc Graw - Hill Publishing Comp. Ltd., New Delhi 3. Fluid Mechanics - A.K. Jain - Khanna Publishers, Delhi
Reference Books	<ol style="list-style-type: none"> 1. Fluid Mechanics, Hydraulics & Hydraulic Machanics - K.R. Arora - Standard Publishers 2. Hyd. of open channels By Bakhmetiff B.A. (McGraw Hill, New York) 3. Open Channel Hyd. By Chow V.T. (McGraw Hill, New York) 4. Engineering Hydraulics By H. Rouse 5. Centrifugal & Axial Flow Pump By Stemanoff A.J. New York 9. Relevant IS codes.
E-Resources	<ol style="list-style-type: none"> 1. http://nptel.ac.in/courses/112106190/2 2. https://ocw.mit.edu/courses/civil-and-environmental-engineering/1-060-engineering-mechanics-ii-spring-2006/lecture-notes/

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Transportation Engineering-II	Course Code:- CE604T
Theory:- 3 Hours/Week	Max. University Theory Examination:- 60 Marks
	Continuous Internal Assessment:- 40 Marks
Max. Time for Theory Exam:- 2.5 Hrs	Credit:- 3

Objectives:-

1	To know about the construction of the involved in transportation
2	The course moves on to Railway, Bridges & tunnels etc.
3	The course reveals about the harbor engineering as well

Unit Number	Details	Hours
1	Railway: Introduction, Tractive resistances & Permanent way: Principles of Transportation, transportation by Roads, railways, Airways, Waterways, their importance and limitations, Route surveys and alignment, railway track, development and gauges, Hauling capacity and tractive effort.	8
2	Railway: Geometric Design; Station & Yards; Points and Crossings & Signaling and interlocking: Formation, cross sections, Super elevation, Equilibrium, Cant and Cant deficiency, various curves, speed on curves. Types, locations, general equipment, layouts, marshaling yards.	8
3	Bridges: Site Investigation and Planning; Loading Standards & Component parts: Selection of site, alignment, collection of bridge design data: essential surveys, hydraulic design, scour, depth of bridge foundation, Economical span, clearance, afflux, type of road & railway bridges.	8
4	Tunnels: 1. Selection of route, Engineering surveys, alignment, shape and size of tunnel, bridge action, pressure relief phenomenon, Tunnel approaches, Shafts, pilot shafts 2, Construction of tunnels in soft soil, hard soil and rock.	8
5	Harbours and Docks: Types of Harbours and Harbours layouts, shipping lanes, anchoring, location identification; Littoral transport with erosion and deposition; sounding methods; Dry and Wet docks.	8
Total (Hrs)		40

Course Outcomes

Student Should able to :

CO1	Carry out the surveys for railways, airports and harbor
CO2	Plan the layout of different types of terminals
CO3	Perform geometric design for the three modes

Resources

Recommended Books	1.Rangwala SC; Railway Engineering; Charotar Publication House, Anand 2.Rangwala SC; Bridge Engineering; Charotar Publication House, Anand 3.Railway, Bridges & Tunnels by Dr. S.C. Saxena
Reference Books	1.Chakraborty and Das; Principles of transportation engineering; PHI 2 2.Ponnuswamy; Bridge Engineering; TMH 3.Railway Engineering by Arora & Saxena - Dhanpat Rai & Sons 4.Railway Track by K.F. Antia 5.Principles and Practice of Bridge Engineering S.P. Bindra - Dhanpat Rai & Sons 6.Bridge Engineering - J.S. Alagia - Charotar Publication House, Anand 7.Harbour, Docks & Tunnel Engineering - R. Srinivasan 8. Essentials of Bridge Engg. By I.J. Victor; Relevant IS & IRS codes
E-Resources	1. http://nptel.ac.in/courses/105107123/ 2. http://teacher.buet.ac.bd/cfc/CE353/Lec1_Intro_web.pdf

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Environmental Engineering	Course Code:- CE605T
Theory:- 3 Hours/Week	Max. University Theory Examination:- 60 Marks
	Continuous Internal Assessment:- 40 Marks
Max. Time for Theory Exam:- 2.5 Hrs	Credit:- 3

Objectives:-

1	The course relates to the fundamentals related to Environment Engineering.
2	The course moves on to ground Sewerage schemes, water treatment, Advanced Waste Water treatment, etc.

Unit Number	Details	Hours
1	Quality of Surface water from different sources, demand & quantity of water, fire demand, water requirement for various uses, fluctuations in demand, forecast of population.	8
2	Impurities of water and their significance, water-borne diseases, physical, chemical and bacteriological analysis of water, water standards for different uses. Intake structure, conveyance of water, pipe materials, pumps - operation & pumping stations	8
3	Water Supply, Unit operations for waste water treatment, preliminary treatment such as screens, grit chamber, floatation tank, sedimentation and chemical clarification, role of micro-organism in biological treatment, Sewage filtration- theory & design.	8
4	Characteristics and analysis of waste water, recycles of decomposition, physical, chemical & biological parameters. Oxygen demand i.e. BOD & COD, TOC, TOD, Relative Stability, population equivalent.	8
5	Methods of Biological Treatment (Theory & Design) - Activated Sludge process, Oxidation ditch, stabilization ponds, aerated lagoon, anaerobic lagoons, septic tank & imhoff tank, sources & treatment of sludge, sludge thickening and digestion sludge drying beds, sludge disposal.	8
Total (Hrs)		40

Course Outcomes

Student Should able to :

CO1	Determine the sewage characteristics and design various sewage treatment plants
CO2	Manage hazardous wastes, risk assessment and treatment technologies
CO3	Apply environmental treatment technologies and design processes

Resources

Recommended Books	<ol style="list-style-type: none">1. Water Supply Engineering by B.C.Punmia - Laxmi Publications (P) Ltd. New Delhi2. Water Supply & Sanitary Engg. by S.K.Garg - Laxmi Publications (P) Ltd. New Delhi
Reference Books	<ol style="list-style-type: none">1. Water & Waste Water Technology by Mark J.Hammer - Prentice - Hall of India, New Delhi2. Environmental Engineering - H.S. Peavy & D.R.Rowe-Mc Graw Hill Book Company3. Water Supply & Sanitary Engg. by S.K. Husain4. Water & Waste Water Technology - G.M. Fair & J.C. Geyer7. Relevant IS Codes
E-Resources	<ol style="list-style-type: none">1. http://nptel.ac.in/courses/103107084/2. https://www.vidyarthiplus.com/vp/thread-19584.html

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year: Third Year	Semester -VI
Course:- Environmental Engineering Lab	Course Code:- CE606P
Practical : 3 Hrs/Week	Max. University Practical Examination: 10 Marks
Max. Time for Exam.: 2 Hrs	Lab Continuous Internal Assessment:- 15 Marks TW :- 25 Marks
	Credit: 1

Practical Objectives:-

1	To study the growth of microorganism and its quantification
2	To quantify the water and wastewater pollutant

Sr. No.	Practical Description
1	To study the various standards for water, pH meter.
2	To study of sampling techniques for water
3	Measurement of turbidity
4	To determine the coagulant dose required to treat the given turbid water sample
5	To determine the conc. of chlorides in a given water samples
6	Determination of hardness of the given sample
7	Determination of residual chlorine by “Chloroscope”
8	Determination of Alkalinity in a water samples
9	Determination of Acidity in a water samples
10	Determination of Dissolved Oxygen (DO) in the water sample.
11	Determination of Chemical Oxygen demand of a waste water sample.
12	Determination of Biological Oxygen demand of a waste water sample

Notes	
1	Each student should perform at least 8 experiments from the list of experiments.
2	The experiments from the regular practical syllabus will be performed
3	The regular attendance of students during the syllabus practical course will be monitored and marks will be given accordingly.
4	Minimum two tutorials must be conducted from the remaining list of experiments.

Practical/Oral/Presentation:

Practical/Oral/Presentation shall be conducted and assessed jointly by internal and external examiners. The performance in the Practical/Oral/Presentation examination shall be assessed by at least a pair of examiners appointed as examiners by the University.

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Technical Seminar	Course Code:- CE607P
Practical:- 3 Hrs/Week	Max. University Practical Examination:- 20 Marks
Max. Time for Exam:- -2 Hrs	Lab Continuous Internal Assessment:- 30 Marks TW :- 50 Marks
	Credit:- 1

Practical Objectives:-

1	To improve their communicate skills
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Guidelines for preparing Seminar

- ❖ Selection of topic/area
Select a paper according to the specialization of students. Papers from any other approved journals can also be selected.
- ❖ Approval to the selected topic
After selecting the paper, get approval from the concerned faculty in charge.
- ❖ Study of topic
Students are requested to acquire a thorough knowledge on the subject by referring back papers and reference books (These may be included as references at the end of the paper) on the corresponding area.
- ❖ Preparation of slides for presentation
Slides may be presented in MS power point. Time allowed for presentation is 20 minutes for presentation and 5 minutes for discussions. So, number of slides may be around 20 - 25 to adhere the time limit.
- ❖ Organization of slides

a. The first slide will be a title page showing the title, name of author (presenter), roll no. and Class.

b. 2 nd page will contain overview of the seminar

c. Successive pages will contain

a. Objectives of the paper

b. Introduction

c. Body of the paper includes system dynamics, methodology, graphs, block diagrams etc. arranged in a logical sequence depending on the problem.

d. Results and discussions

e. Conclusion

d. Last page will contain references and bibliography. References must be presented in IEEE format, which is given as Annexure 2.

- ❖ Each slide consists of 4 or 5 lines with enough space between lines.
- ❖ All equations must be typed using equation editor (available with MS office/other office suite)
- ❖ Each slide will have a title and each figure have a caption.
- ❖ An abstract of the work (seminar) is to be circulated among the faculty and fellow students before presentation of the seminar. The abstract is prepared as follows. The seminar abstract is an important record of the coverage of topic and provides a valuable source of leading references for students and faculty alike. Accordingly, the abstract must serve as an introduction to your seminar topic. It will include the key hypotheses, the major scientific findings and a brief conclusion. The abstract will be limited to 500 words, excluding figures and tables. The abstract must contain references to the research articles upon which the seminar is based as well as research articles that have served as key background material. The references should be listed using a standard format (IEEE format given in App. 1). The abstract must be submitted to the faculty in charge and get approval before the presentation.
- ❖ Draft copy of the Seminar report should also be submitted before the presentation.

Practical/Oral/Presentation:

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School: Engineering & Technology	Programme: B.Tech – Civil Engineering
Year:- Third Year	Semester:- VI
Course:- Internship Training(4 weeks)	Course Code:- CE608P
	Credit:- 3

Practical Objectives:-

1	Prepare students for successful engineering or management careers in the architecture, engineering, and construction (AEC) industry or related fields.
2	Provide employers with a well-educated workforce that is ready and able to perform valuable civil and construction engineering and managerial services immediately after graduation.
3	Encourage the growth of knowledge-based industry and stimulate economic growth in Arkansas.

INTERNSHIP GUIDELINES

- ❖ The internship shall be completed during the period specified in the Scheme of Teaching and Examination.
- ❖ The internship can be carried out in any industry/R and D Organization/Research Institute/Educational institute of repute.
- ❖ (A) The Department/college shall nominate staff members to facilitate, guide and supervise students under internship. (B) The Internal Guide has to visit place of internship at least once during the student's internship.
- ❖ The students shall report the progress of the internship to the guide in regular intervals and seek his/her advice.
- ❖ After the completion of Internship, students shall submit a report with completion and attendance certificates to the Head of the Department with the approval of both internal and external guides.
- ❖ The internal guide shall award the marks for seminar and internship report after evaluation. He/she will also be the internal examiner for Viva-Voce conducted during SEE.
- ❖ The external guide from the industry shall be an examiner for the viva voce on Internship. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide. The Examiners shall jointly award the Viva-Voce marks.
- ❖ In case the external Guide expresses his inability to conduct viva voce, the Chief superin-

tended of the college institution shall appoint a senior faculty of the Department of conduct vi-va-voce along with the internal guide. The same shall be informed in writing to the concerned Chairperson, Board of Examiners (BOE).

- ❖ The students are permitted to carry out the internship anywhere in India or abroad. **The University will not provide any kind of financial assistance to any student for carrying out the Internship.**

Other important note :

- ✓ It is mandatory that student has to complete the internship.
- ✓ If any student fails to complete internship, he/she will not be eligible for the award of degree.
- ✓ In case of non-completion of internship, the student has to redo the internship.

Notes

1	Each student should perform at least 8 experiments from the list of experiments.
2	The experiments from the regular practical syllabus will be performed
3	The regular attendance of students during the syllabus practical course will be monitored and marks will be given accordingly.
4	Minimum two tutorials must be conducted from the remaining list of experiments.