DARBHANGA COLLEGE OF ENGINEERING



COURSE FILE

OF

INTRODUCTION TO CIVIL ENGINEERING (101306)



Faculty Name:

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Assistant Professor, DEPARTMENT OF CIVIL ENGINEERING



विज्ञान एवं प्रावैधिकी विभाग Department of Science and Technology Government of Bihar

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DEPARTMENT OF CIVIL ENGINEERING DARBHANGA COLLEGE OF ENGINEERING, DARBHANGA

Vision of Department

To bring forth competent engineers to serve national & multi-national industries and society and, encouraging them towards higher studies

Mission of Department

M1. To nurture graduates into competent and technologically capable professionals through motivated teaching-learning ambience and by collaborating with relevant industries.

M2. To encourage graduates towards research and innovation in the field of civil engineering.

M3. To inculcate humanitarian ethical values in graduates through various social-cultural activities.

Program Educational Objectives (PEOs)

PEO1. The graduates will be able to demonstrate knowledge and skills of civil engineering to

solve engineering problems related to structural design.

PEO2. The graduates will be able to function in the evolving research and development as design consultant in the relevant industry using modern software tools.

PEO3. The graduates will be able to showcase professional skills encompassing societal and ethical values.

Program Specific Outcomes (PSO):

PSO1: Students will be able to use advanced modern methods and tools like GIS, Auto CAD, Staad Pro, Total station to function as design consultants.

PSO2: Graduates will able to develop knowledge in some specific technical areas of civil engineering like Structural, Geotechnical, Transportation, Earthquake, Geomatics and Environmental Engineering.

CIVIL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1	To prepare our graduates to have successful careers in design and analysis of various Civil Engineering structures and also motivate them to pursue higher studies and research in the relevant fields.
PEO2	To prepare our graduates as a good cognizance of Societal, Environmental and Ethical issues and have effective communication skills.
PEO3	To develop awareness of contemporary professionals issues and encourage them to support the Engineering profession through contribution in professional's societies and/or Educational Institutions.

PROGRAM SPECIFIC OUTCOMES (PSOs)

The PSOs of Civil engineering programme supported by the curriculum are given below.

PSO1	To function as design consultants in the relevant industry for the design of civil
	engineering structures using modern software tool.
PSO2	To develop knowledge in some specific technical areas of civil engineering;
	Structural, Geotechnical, Transportation, Earthquake and Environmental engineering.

PROGRAMME OUTCOMES (PO)

	Engineering knowledge : An ability to apply the knowledge of mathematics, science,
PO1	engineering fundamentals, and an engineering specialization to get the solution of the
	engineering problems.
DOJ	Problem analysis: Ability to Identify, formulates, review research literature, and
PO2	analyze complex engineering problems.
DO2	Design/development of solutions: Ability to design solutions for complex
P05	engineering problems by considering social, economical and environmental aspects.
	Conduct investigations of complex problems: Use research-based knowledge to
PO4	design, conduct analyse experiments to get valid conclusion.
DO5	Modern tool usage: ability to create, select, and apply appropriate techniques, and to
POJ	model complex engineering activities with an understanding of the limitations.
DO6	The engineer and society: Ability to apply knowledge by considering social health,
PO0	safety, legal and cultural issues.
$\mathbf{D}\mathbf{O}7$	Environment and sustainability: Understanding of the impact of the adopted
F07	engineering solutions in social and environmental contexts.
DO8	Ethics: Understanding of the ethical issues of the civil engineering and applying
PU8	ethical principles in engineering practices.
	Individual and teamwork: Ability to work effectively as an individual or in team, as
P09	a member or as a leader.
DO10	Communication: An ability to communicate clearly and effectively through different
POIO	modes of communication.
PO11	Project management and finance: Ability to handle project and to manage finance
	related issue
DO12	Life-long learning: Recognize the need for, and have the preparation and ability to
PO12	engage in independent and life-long learning.

Institute/college Name	Darbhanga College of Engineering, Darbhanga
Corse/Branch	B.Tech./Civil Engineering
Year/Semester	11/111
Course Code/Choice	101306/ Core
Course credits	2
Course Name	Design of Steel Structure
Lecture/ Sessional (per week)	2/0
Course Teacher name	Mr. Ahsan Rabbani
Deptt./Designation	Civil Engineering/Assistant Professor

Objective: When the students enter the college to pursue a degree in Civil Engineering and as well pursue a career in Civil Engineering after graduation, they need to understand the breadth and depth available in this field for possible engagement. When many alternative disciplines of engineering appear to offer apparently more glamorous avenues for advancement, the Civil Engineering student should realize the solid foundations available in this mother of all engineering disciplines. The students should understand the enormous possibilities available for creative and innovative works in this all pervasive field of engineering

COURSE OUTCOMES (COs) : After the completion of this course, students will be able to ;

CO1: Understand the vast breadth and numerous areas of engagement available in the overall

field of Civil Engineering

CO2: Motivate to pursue a career in one of the many areas of Civil Engineering with deep interest and keenness

CO3: Expose the students to the various avenues available for doing creative and innovative work in this field by showcasing the many monuments and inspiring projects of public utility.

Sl No.	Course Outcome	РО
1	CO1: Understand the vast breadth and numerous areas of engagement available	PO1, PO2, PO3, PO5, PO6, PO7,
	in the overall field of Civil Engineering	PO8, PO9, PO11, PO12. PSO1,
		PSO2
2	CO2: Motivate to pursue a career in one of the many areas of Civil Engineering	PO1, PO2, PO3, PO6, PO7, PO8,
	with deep interest and keenness	PO9, PO11, PO12. PSO1, PSO2
3	CO3: Expose the students to the various avenues available for doing creative	PO1, PO2, PO3, PO5, PO7, PO8,
	and innovative work in this field by showcasing the many monuments and	PO9, PO10, PO11, PO12. PSO1,
	in minimum and a firm his methics	PSO2
	inspiring projects of public utility.	

CO-PO MAPPING

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1: Understand the vast														
breadth and numerous areas														
of engagement available in	3	2	3	-	1	2	3	1	2	-	3	3	1	3
the overall field of Civil														
Engineering														
CO2: Motivate to pursue a														
career in one of the many														
areas of Civil Engineering	3	3	3	-	-	2	2	2	2	-	3	3	2	3
with deep interest and														
keenness														
CO3: Expose the students														
to the various avenues														
available for doing creative														
and innovative work in this														
field by showcasing the	3	2	3	-	3	-	1	2	2	1	2	3	3	2
many monuments and														
inspiring projects of public														
utility														

Correlation Level: 1- Slight (Low) 2- moderate (Medium) 3 – Substantial (High)

HSMC251	Introduction to Civil Engineering	2L:0T:0P	2 credits
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When the students enter the college to pursue a degree in Civil Engineering and as well pursue a career in Civil Engineering after graduation, they need to understand the breadth and depth available in this field for possible engagement. When many alternative disciplines of engineering appear to offer apparently more glamourous avenues for advancement, the Civil Engineering student should realize the solid foundations available in this mother of all engineering disciplines. The students should understand the enormous possibilities available for creative and innovative works in this all pervasive field of engineering.

Proposed Syllabus

What is Civil Engineering/ Infrastructure, History of Civil Engineering, Overview of ancient & modern civil engineering marvels, current national planning for civil engineering/ infrastructure projects, scope of work involved in various branches of Civil Engineering – Architecture & Town planning, Surveying & Geomatics, Structural Engineering, Construction Management, Construction materials, Hydrology and Water Resources Engineering, Hydraulic Engineering, Environmental Engineering &Sustainability, Pavement Engineering and construction, Traffic & Transportation Engineering and Management, Geotechnical Engineering, Ocean Engineering, Building Energy Efficiency, Basics of

Contract Management, Professional Ethics, Avenues for entrepreneurial working, Creativity & Innovativeness in Civil Engineering,

Modules

- 1. **Basic Understanding**: What is Civil Engineering/ Infrastructure? Basics of Engineering and Civil Engineering; Broad disciplines of Civil Engineering; Importance of Civil Engineering, Possible scopes for a career
- 2. **History of Civil engineering**: Early constructions and developments over time; Ancient monuments & Modern marvels; Development of various materials of construction and
 - methods of construction; Works of Eminent civil engineers
- 3. Overview of National Planning for Construction and Infrastructure Development; Position of construction industry vis-à-vis other industries, five year plan outlays for construction; current budgets for infrastructure works;
- 4. **Fundamentals of Architecture & Town Planning**: Aesthetics in Civil Engineering, Examples of great architecture, fundamentals of architectural design & town planning; Building Systems (HVAC, Acoustics, Lighting, etc.); LEED ratings; Development of Smart cities
- 5. Fundamentals of Building Materials: Stones, bricks, mortars, Plain, Reinforced & Prestressed Concrete, Construction Chemicals; Structural Steel, High Tensile Steel, Carbon Composites; Plastics in Construction; 3D printing; Recycling of Construction & Demolition wastes
- 6. Basics of Construction Management & Contracts Management: Temporary Structures in Construction; Construction Methods for various types of Structures; Major Construction equipment; Automation & Robotics in Construction; Modern Project management Systems; Advent of Lean Construction; Importance of Contracts Management
- 7. Environmental Engineering & Sustainability: Water treatment systems; Effluent treatment systems; Solid waste management; Sustainability in Construction;
- 8. Geotechnical Engineering: Basics of soil mechanics, rock mechanics and geology; various types of foundations; basics of rock mechanics & tunnelling
- 9. Hydraulics, Hydrology & Water Resources Engineering: Fundamentals of fluid flow, basics of water supply systems; Underground Structures; Underground Structures Multipurpose reservoir projects
- 10. Ocean Engineering: Basics of Wave and Current Systems; Sediment transport systems; Ports & Harbours and other marine structures
- 11. **Power Plant Structures**: Chimneys, Natural & Induced Draught Colling towers, coal handling systems, ash handling systems; nuclear containment structures; hydro power projects
- 12. Structural Engineering: Types of buildings; tall structures; various types of bridges; Water retaining structures; Other structural systems; Experimental Stress Analysis; Wind tunnel studies;
- 13. Surveying & Geomatics: Traditional surveying techniques, Total Stations, Development of Digital Terrain Models; GPS, LIDAR;
- 14. **Traffic &Transportation Engineering**: Investments in transport infrastructure development in India for different modes of transport; Developments and challenges in integrated transport development in India: road, rail, port and harbour and airport sector; PPP in transport sector; Intelligent Transport Systems; Urban Public and Freight Transportation; Road Safety under heterogeneous traffic; Sustainable and resilient pavement materials, design, construction and management; Case studies and examples.

- 15. **Repairs & Rehabilitation of Structures:** Basics of corrosion phenomena and other structural distress mechanisms; some simple systems of rehabilitation of structures; NonDestructive testing systems; Use of carbon fibre wrapping and carbon composites in repairs.
- 16. Computational Methods, IT, IoT in Civil Engineering: Typical software used in Civil Engineering-Finite Element Method, Computational Fluid Dynamics; Computational Geotechnical Methods; highway design (MX), Building Information Modelling; Highlighting typical available software systems (SAP, STAAD, ABAQUS, MATLAB, ETAB, NASTRAN, NISA, MIKE 21, MODFLOW, REVIT, TEKLA, AUTOCAD,...GEOSTUDIO, EDUSHAKE, MSP, PRIMAVERA, ArcGIS, VisSIM, ...)
- 17. Industrial lectures: Case studies of large civil engineering projects by industry professionals, covering comprehensive planning to commissioning;
- 18. Basics of Professionalism: Professional Ethics, Entrepreneurial possibilities in Civil Engineering, Possibilities for creative & innovative working, Technical writing Skills enhancement; Facilities Management; Quality & HSE Systems in Construction

Text/Reference Books:

- 1. Patil, B.S.(1974), Legal Aspects of Building and Engineering Contract
- 2. The National Building Code, BIS, (2017)
- 3. RERA Act, (2017)
- 4. Meena Rao (2006), Fundamental concepts in Law of Contract, 3rd Edn. Professional Offset
- 5. Chandiramani, Neelima (2000), The Law of Contract: An Outline, 2nd Edn. Avinash Publications Mumbai
- 6. Avtarsingh (2002), Law of Contract, Eastern Book Co.
- 7. Dutt (1994), Indian Contract Act, Eastern Law House
- 8. Anson W.R.(1979), Law of Contract, Oxford University Press
- 9. Kwatra G.K.(2005), The Arbitration & Conciliation of Law in India with case law on UNCITRAL Model Law on Arbitration, Indian Council of Arbitration
- 10. Avtarsingh (2005), Law of Arbitration and Conciliation, Eastern Book Co.
- 11. Wadhera (2004), Intellectual Property Rights, Universal Law Publishing Co.
- 12. P. S. Narayan (2000), Intellectual Property Rights, Gogia Law Agency
- 13. T. Ramappa (2010), Intellectual Property Rights Law in India, Asia Law House
- 14. Bare text (2005), Right to Information Act
- 15. O.P. Malhotra, Law of Industrial Disputes, N.M. Tripathi Publishers
- 16. K.M. Desai(1946), The Industrial Employment (Standing Orders) Act
- Rustamji R.F., Introduction to the Law of Industrial Disputes, Asia Publishing House 18. Vee, Charles & Skitmore, Martin (2003) Professional Ethics in the Construction Industry, Engineering Construction and Architectural management, Vol.10, Iss. 2, pp 117-127, MCB UP Ltd
- 18. American Society of Civil Engineers (2011) ASCE Code of Ethics Principles Study and Application
- 19. Ethics in Engineering- M.W.Martin& R.Schinzinger, McGraw-Hill
- 20. Engineering Ethics, National Institute for Engineering Ethics, USA
- 21. www.ieindia.org
- 22. Engineering ethics: concepts and cases C. E. Harris, M.S. Pritchard, M.J.Rabins
- 23. Resisting Bureaucratic Corruption: Alacrity Housing Chennai (Teaching Case Study) -S. Ramakrishna Velamuri -CEIBS
- 24. CONSTRUCTION CONTRACTS, http://www.jnormanstark.com/contract.htm
- 25. Internet and Business Handbook, Chap 4, CONTRACTS LAW, http://www.laderapress.com/laderapress/contractslaw1.html
 26. Contract & & Agreements / Agreements / Agreements / Agreements / Contract% 20Law/C.htm
- 27. Contracts, http://206.127.69.152/jgretch/crj/211/ch7.ppt
- 28. Business & Personal Law. Chapter 7. "How Contracts Arise", http://yucaipahigh.com/schristensen/lawweb/lawch7.ppt
- 29. Types of Contracts, http://cmsu2.cmsu.edu/public/classes/rahm/meiners.con.ppt
- 30. IV.TYPES OF CONTRACTS AND IMPORTANT PROVISIONS, <u>http://www.worldbank.org/html/opr/consult/guidetxt/types.html</u> Contract Types/Pricing Arrangements Guideline- 1.4.G (11/04/02), http://www.sandia.gov/policy/14g.pdf

		3rd Sen	nester		w.e.f:
	Dant	09.00-11.00	11:00-01:00	01:00-02:00	02:00-5:00
DAY	Dept.	EMET	ECA		V. EM-I Lab
-	CE		Humanity		V.Survey & Geomatics LAB
MONDAY	CE	DIO AETab	DS		V. DS Lab
-	CSE	TD	BE		Virtual EM Lab - M1
	ME.	EM.I	DE		REMIDAL CLASSES
-	EEE	Suprav & Gaomatics	FM		V. BELAB
TUESDAY	CE	V DS Lab	OOPS		REMIDAL CLASSES
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LSE	FM	MATH-III		Virtual MD Lab
	IVIE	EM	ECA		REMIDAL CLASSES
-	EEE	ICE	M-III		V. CACED LAB
DNESDAY	CE	V OOPS Lab	DS		Internship
	USE	DE(T1)	REMIDALLAR		MATH-III
	ME	DE(TI)	EMET		V. EM-I Lab
	EEE	INTERNISHIP	EM		√. Survey & Geomatics LAB
THURSDAY	CE	Tash Writing	OOPS		V. OOPS Lab
	USE	BIO	MATH-III		Virtual EM Lab - M2
	ME	HVPE	EM-I		Internship
3 S	CE	Humanity	CACED		Project
FRIDAY	CE	MIII	AE		V. AE Lab
	CSE	TD	EM		Virtual MD Lab
	IVIE	EM	HVPE		Project
	EEE	BE	INTERNSHIP		REMIDAL CLASSES
SATURDAY	CE	AE	MIII		REMIDAL CLASSES
	ME	BIO	BE		REMIDAL CLASSES
	Witz				
	EEE (3rd Sem)	1	CE (3r	i Sem)
SN	Subject	Faculty	SN.	Subject	Faculty
1	FCA	Mr. Diwakar Verma	1	BE	Mr. Deepak Kumar
2	EM-I	Mr. Prabhat Kumar	- 2	BIO	Kumari Neeraj
	DF	Ms. Sweta Kumari	3	CACED	Mr. Akash
1	FM	Mr. Vikash/Dr. Abhishek	4	EM	Mr. S. S. Chhoudhary
5	EMET	Dr. Ravi Ranjan/Mr. Ravi Kuma	ur 5	S & Geomatics	Mr. Akash
	HVPE	Dr. Ratnakshi Rov	6	M-III	Dr. R. K. Jha
7	CD Project	All faculty	7	Humanities-I	Dr. Ratnakshi Roy
8	Intership	All Faculty	8	ICE	Mr. Ahsan Rabbani
0	MOOCS	All Faculty	9	Internship	All Faculty
	ME	(3rd Sem)		CSE (3	rd Sem)
SN	Subject	Faculty	SN.	Subject	Faculty
	MATH-III	GL-1 (MATH)	1	DS	Mis. Poonam Prabha
	EM	Mr. Vikash Kumar	2	OOPS	Mr. Dhirendr Kumar
	TD	Mr. Navdeen Pandev	3	MIII	Mr. Amrit Mahato
	DE	Mr. Deenak Singh	4	Tech. Writing	
+	MD	Dr. Md. Asiad Mokhtar	5	CD Project	All faculty
	BIO	GL (BIO)	6	Intership	Mr. Dhirendr Kumar
0	ВЮ	GE (DIO)	2	MOOCS	Mr. Anand Kamal

for, HOD (EEE 2020

HOD (LE

N. 5494 15/07/2020 HOD (ME) Routine Incharge

Principer of 1000 2020

Asst. Routine Incharge

List of Students (2019-2023) 3rd Semester							
SI. No.	Registration No.	Name of Student					
1	18101111003	Abhishek Sagar					
2	18101111013	Raushan Kumar					
3	18101111022	Suraj Kumar					
4	18101111026	MD Shamshad Alam					
5	18101111042	Niranjan Kumar					
6	18101111044	Ravi Kumar					
7	18101111048	Vikash Kumar					
8	19101111001	Prabhat Kumar					
9	19101111002	Vikash Chandra					
10	19101111003	Raja Kumar					
11	19101111004	Akshansh Ranjan					
12	19101111005	Sonam Kumari					
13	19101111006	Avinash Kumar					
14	19101111007	Ankit Kumar					
15	19101111008	Sarvesh Suman					
16	19101111009	Nagendra Safi					
17	19101111010	MD Shahbaz					
18	19101111011	Abhinav Bhardwaj					
19	19101111012	Abhishek Kumar					
20	19101111013	Anshu Kumari					
21	19101111014	Dilkhush Kumar					
22	19101111015	Mantu Kumar					
23	19101111016	Ajesh Kumar					
24	19101111017	Rupesh Kumar					
25	19101111018	Kundan Kumar					
26	19101111019	Suraj Kumar					
27	19101111020	Sahil Kumar					
28	19101111021	Vicky Kumar					
29	19101111022	Pintu Kumar					
30	19101111023	Durgesh Kumar					
31	19101111024	Rishabh Kumar					
32	19101111025	Abhay Kumar					
33	19101111026	Navin Prakash					
34	19101111027	Saurav Samdarshi					
35	19101111028	Avinash Kumar					
36	19101111029	Amit Raj					

37	19101111030	Kunal Kishor
38	19101111031	MD Ragib Hasan
39	19101111032	Sumit Raushan
40	19101111033	Anisha
41	19101111034	Aradhana Kumari
42	19101111035	Suraj Kumar
43	19101111036	Bharat Kumar
44	19101111037	Alok Kumar Singh
45	19101111038	shyam salone
46	19101111039	Sandhya Bharti
47	19101111040	Shailesh Kumar
48	19101111041	Rajnikant Kumar
49	19101111042	Sumit Anand
50	19101111043	Subodh Kumar
51	19101111044	Gautam Kumar
52	19101111045	Rohit Kumar Mishara
53	19101111046	Vishaka Kumari
54	19101111047	Ankit Kumar Pandey
55	19101111048	Saquib Johar
56	19101111049	Prakash Kumar
57	19101111050	Ranveer Kumar
58	19101111051	Avinash Shivam krishna
59	19101111052	Abhinandan Kumar
60	19101111053	Rohit Kumar
61	19101111054	Ram Vinay Yadav
62	19101111055	Abhishek Ranjan
63	19101111056	Avinash
64	19101111057	Ranjan kumar Bhagat
65	19101111058	Mayank Kumar
66	19101111059	MD Aatif Raza
67	19101111060	Prince Kumar
68	20-LE-CE-01	Prafull Singh
69	20-LE-CE-02	Ashish Kumar Bharti
70	20-LE-CE-03	Vijay Shekhar
71	20-LE-CE-04	Vikram Ray
72	20-LE-CE-05	Arpit Kumar
73	20-LE-CE-06	Raushan Prasad Singh
74	20-LE-CE-07	Sannidev Kumar Ram
75	20-LE-CE-08	Aman Kumar

Institute/college Name	Darbhanga College of Engineering, Darbhanga
Corse/Branch	B.Tech./Civil Engineering
Year/Semester	III/VI
Course Code/Choice	011620/ Core
Course credits	3
Course Name	Design of Steel Structure
Lecture/ Sessional (per week)	4/0
Course Teacher name	Ahsan Rabbani
Deptt./Designation	Civil Engineering/Assistant Professor

Lecture Plan:

ORGANISATION OF COURSE (2-1-0)

S.	Module [No of Lectures within	Tutorials
No.	brackets]	
1	Basic Understanding (1)	Develop a matrix of various disciplines and possible roles for engineers in each
2	History of Civil engineering (1)	Identify 10 ancient monuments and ten modern marvels and list the uniqueness of each
3	Overview of National planning for Construction and Infrastructure Development (1)	Develop a Strategic Plan for Civil Engineering works for next ten years based on past investments and identify one typical on-going mega project in each area
4	Architecture & Town Planning (1)	Identify ten best civil engineering projects with high aesthetic appeal with one possible factor for each; List down the possible systems required for a typical Smart City
5	Building Materials (2)	Identify three top new materials and their potential in construction; Visit a Concrete Lab and make a report
6	Construction Management, Contracts management (2)	Identify 5 typical construction methods and list their advantages/ positive features
7	Environmental Engineering & Sustainability (2)	Environmental Engineering & Sustainability: Sustainability principles, Sustainable built environment, water treatment systems, good practices of wastewater management. examples of Solid and hazardous waste management, Air pollution and control
8	Geotechnical Engineering (2)	List top five tunnel projects in India and their features; collect and study geotechnical investigation report of any one Metro Rail (underground) project; Visit a construction site and make a site visit report
9	Hydraulics, Hydrology &Water Resources Engineering (1)	Identify three river interlinking projects and their features; visit a Hydraulics Lab and make a report
10	Ocean Engineering, Ports & Harbours (1)	Identify 5 typical ports in India and list the structures available in them; Visit a related/similar facility, if possible in nearby place and make a report
11	Power Plant Structures (1)	Collect the typical layout for a large thermal power plant and a large hydro power plant and identify all the structures and systems falling in them.
12	Structural Engineering (3)	Identify 5 unique features for typical buildings,

		bridges, tall structures and large span structures; Visit Structures Testing Lab/facility and make a report
13	Surveying & Geomatics (1)	Collect visual representations prepared by a Total Station and LIDAR and compare; Study typical Google street map and Google Earth Map and study how each can facilitate the other
14	Traffic & transportation (1)	Investments in transport infrastructure; Developments and challenges; Intelligent Transport Systems; Smart Cities, Urban Transport; Road Safety; Sustainable and resilient highway design principles; Plan a sustainable transport system for a city; Identify key features/components in the planning and design of a green field highway/airport/port/railway and the cost – economics.
15	Repairs & rehabilitation of Structures (1)	Collect the history of a major rehabilitation project and list the interesting features
16	Computational Methods, IT, IoT in Civil Engineering (2)	Visit an AutoCad lab and prepare a report; Identify ten interesting software systems used in Civil Engg and their key features
17	Industrial lectures (2)	For each case study list the interesting features
18	Basics of Professionalism (3)	List 5 cases of violation of professional ethics and list preventive measures; Identify 5 interesting projects and their positive features; Write 400 word reports on one ancient monument and a modern marvel of civil engineering
	TOTAL NO LECTURES =30	15

DARBHANGA COLLEGE OF ENGINEERING DEPARTMENT OF CIVIL ENGINEERING

Introduction to Civil Engineering

Semester: 3rd Code: 101306

ASSIGNMENT NO.: 01

1. Identify ten best civil engineering projects with high aesthetic appeal with one possible factor for each.

- 2. List down the possible systems required for a typical Smart City.
- 3. Identify three top new materials and their potential in construction.
- 4. Identify 5 typical construction methods and list their advantages
- 5. List top five tunnel projects in India and their features

DARBHANGA COLLEGE OF ENGINEERING DEPARTMENT OF CIVIL ENGINEERING

Introduction to Civil Engineering

Semester: 3rd Code: 101306

ASSIGNMENT NO.: 02

- 1. Identify three river interlinking projects and their features
- 2. Identify 5 typical ports in India and list the structures available in them
- 3. Identify 5 unique features for typical buildings, bridges, tall structures and large span structures
- 4. Identify ten interesting software systems used in Civil Engineering and their key features
- 5. List 5 cases of violation of professional ethics and list preventive measures

DEPARTMENT OF CIVIL ENGINEERING

Introduction to Civil Engineering

Semester: 3rd

Maximum Time: 2 hour

- 1. Identify three top new materials and their potential in construction
- 2. Explain importance of Civil Engineering
- 3. Write a short note on how to develop a city?
- 4. Define surveying. Explain various types of surveying

DEPARTMENT OF CIVIL ENGINEERING

Introduction to Civil Engineering

Semester: 3rd

Maximum Time: 2 hour

- 1. Identify three top new materials and their potential in construction
- 2. Explain importance of Civil Engineering
- 3. Write a short note on how to develop a city?
- 4. Define surveying. Explain various types of surveying

DEPARTMENT OF CIVIL ENGINEERING

Introduction to Civil Engineering

Semester: 3rd

Maximum Time: 2 hour

- 1. Identify three top new materials and their potential in construction
- 2. Explain importance of Civil Engineering
- 3. Write a short note on how to develop a city?
- 4. Define surveying. Explain various types of surveying

DEPARTMENT OF CIVIL ENGINEERING

Introduction to Civil Engineering

Semester: 3rd

Maximum Time: 2 hour

- 1. Identify three top new materials and their potential in construction
- 2. Explain importance of Civil Engineering
- 3. Write a short note on how to develop a city?
- 4. Define surveying. Explain various types of surveying

Code : HSMC-251 (101306) **B.Tech 3rd Semester Special** Exam., 2020 New Course) INTRODUCTION TO CIVIL ENGINEERING Time : 3 hours Full Marks : 70 https://www.akubihar.com Instructions : (i) The marks are indicated in the right-hand margin. (ii) There are NINE questions in this paper. (iii) Attempt FIVE questions in all. (iv) Question No. 1 is compulsory. 1. Choose the correct answer of the following 2×7=14 (any seven) : In surveying, the measurement are taken in (i) vertical plane (ii) inclined plane horizontal plane (ind-vertical and horizontal planes 20AK/1306 (Turn Over)

https://www.akubihar.com 2) The depth of excavation for foundation is usually checked with (i) tape (ii) ranging rod (iii) leyelling staff boning rod Which of the following can be used for (c) flooring? (i) Stone (ii) Concrete (iii) Brick for All of the above The smallest length that can be drawn (d) on a map is /∂ 0·2 mm (ii) 0.6 mm (iii) 1 cm (iv) 1.2 cm 115. The scale on which three dimensions can be measured is known as (i) plain scale diagonal scale 1.10 (iii) chord scale (iv) vernier scale

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Traffic sign indicating speed limit is categorized in (i) regulatory sign (ii) warning sign (iii) informatory sign prohibitory sign https://www.akubihar.com (g) To define grade of concrete, which characteristic is used? (i) Tensile strength Compressive strength (iii) Density (iv) None of the above (h). The compass box is made-up of (i) iron (ii) aluminium (iv) steel

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What are the various uses of stones and 4. (a) construction? bricks in Why is nowadays popularity of stone as building material going down?

Discuss whether concrete rubble and (Ь) crusher dust can be used in making fresh concrete. Highlight their advantages and disadvantages.

- What is substructure? Discuss various 5. (a) functions of foundations.
 - (i) Combined footings for RC columns

Write short notes on the following :

- (ii) Grillage foundation
- Differentiate between plan and map. 6. (a)
 - Explain the principles of surveying. (b)
- different brief note on Give а 7. (a) transportation systems.
 - Explain design loads acting on a (b) building.

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- Which are the principles of planning? 8. (a) Explain privacy and circulation in detail.
 - Give details of different construction (b) methods for various types of structure.
 - (a) Write a note about entrepreneurial possibilities in civil engineering.
 - Write a note on application of SAAD Pro (b) in design of civil engineering structures.

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Code :	101306		(2)
B.Tech 3rd Semester Exam (New Course)	., 2019	(D)	The object of surveying is to prepare a U drawing
INTRODUCTION TO CIVIL ENG	ANEERING		(ii) cross-section (iii) sketch
Time : 3 hours	Full Marks : 70		(w) map
 Instructions : (i) The marks are indicated in the right (ii) There are NINE questions in this part (iii) Attempt FIVE questions in all. (iv) Question No. 1 is compulsory. 1. Choose the correct option from the (any seven) : (a) The scope of Civil Engineer (i) planning, designing and (ii) supervision of construct (iii) maintenance of work 	ht-hand margin. baper. he following 2×7=14 ring is d estimating ction	tt https://www.akubihar.com (d)	The main principle of surveying is to work from (i) part to the whole (ii) whole to the part (iii) higher to lower level (iii) lower to higher level (iii) lower to higher level Marble is a form of (i) igneous (ii) sedimentary (iii) metamorphic
(iv) All of the above		ţi	v) None of the above
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(e)	The earth's water circulatory system is known as			(h	V
	(i) water cycle				
	(道) hydraulic cycle				
	(iii) monsoon cycle				
	(iv) None of the above				
Ø	'No parking' sign is the type of	https://	https://	N	
	(i) regulatory sign	/www	/www		
	fü) warning sign	v.akul	v.akul		
	(iii) informatory sign	bihar.	bihar.		'
	(iu) None of the above	.com	com		(
(g)	A barrier across a river to change flow of river water is called			()	T
	(i) weir				l
	(ti) dam				ţi
	(iii) barrage				(ä
	(iv) aqueduct				(it
	•				

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	ው	Which type of door provides maximum safety?
		(1) Hollow core flush door
		(n) Solid core flush door
		(11) Sash door
		(iv) Battened and ledged door
https://	N	The basic function of foundation is
www.ał		(u) to provide stability
cubihar.		(m) to check the settlement of a building
com		(iv) All of the above
	6)	The satellite constellation of GPS consists of
		(1) 4 satellites

- (ii) 6 satellites
- (iii) 18 satellites
- (iv) 24 satellites

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- 2. (a) What is Civil Engineering? Discuss various civil engineering infrastructures required
 - (b) Explain the terms 'Planning, Scheduling and Management' as applied to project management, emphasizing their importance.
- 3. (a) Briefly explain the principles of building planning.
 - (b) What is super-structure? Distinguish between load bearing and framed structure. https://www.akubihar.com
- 4. Explain the following materials and list their various uses in building construction : 14
 - (a) Plain concrete
 - (b) Reinforced cement concrete
 - (c) Prestressed concrete
 - (d) Precast concrete

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- 5. (a) Explain the properties and uses of different types of steel. 7 What are the factors to be considered ы while selecting a site for a building? 7 6. What are the open space requirements (a) as per National Building Code norms? 7 Write short notes on the following : 7 **Љ**) /i) Total Station (iii) Olobal Positioning System 7 What is mass transportation system? 7. /a) What is hydrology? What are its Ю 7 applications? Which are the various aids and devices 8. (a) used to control, regulate and guide 7 traffic in the cities? **software** basic the *(b)* down List applications used in Civil Engineering 7 Also compare the benefit of each.
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- 9. (a) Briefly explain the basic professional ethics of Civil Engineer.
 - (b) What do you understand by HSE system in construction?

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