Department of Civil Engineering

LESSON PLAN

Session: Jan – Jun, 2026

Semester:

Name:_____

University Roll Number: _____

BUDDHA INSTITUTE OF TECHNOLOGY

CL-1 Sector - 7, GIDA, Gorakhpur - 273209 (U.P)

Phones : (0551) 2580413-415

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Evaluation scheme

TIME TABLE

BUDDHA INSTITUTE OF TECHNOLOGY, GIDA, GORAKHPUR
CLASS TIME TABLE (Odd Sem 2025-26)

Dept. CE	w.e.f.: 11 Aug. 2025-26			Semester: 5 (A1+A2)			ROOM NO: 204-B	
Day / Time	**09:10 AM to 10:05 AM**	**10:05 AM to 11:00 AM**	**SHORT BREAK (15 Min.)**	**11:15 AM to 12:10 PM**	**12:10 PM to 01:05 PM**	**LUNCH BREAK (40 Min.)**	**01:45 PM to 02:40 PM**	**02:40 PM to 3:35 PM**	**3:35 PM to 4:30 PM**
Monday	SA (RS)	ANPC (PK)		Geotech (A1)-CLC (BN)			Geotech (BN)	QECM (AK)	CT (VKS)
				QECM (A2)-(AK)					
Tuesday	HEC	Geotech (BN)		SA (RS)	ANPC (PK)		ITCS (RKT)	QECM (AK)	CT (VKS)
Wednesday	PPC (ENG) (SKT)	SA (RS)		Geotech (A2)-CLC (BN)			ANPC (PK)	CT (VKS)	QECM (AK)
				QECM (A1)-(AK)					
Thursday	SA (RS)	CSEP (RS)		CT (VKS)	QECM (AK)		ANPC (PK)	Geotech (BN)	LIBRARY
Friday	Geotech (BN)	SA (RS)		CAD LAB (A2)-R.N.306 (PK)			CT (VKS)	QECM (AK)	ANPC (PK)
				MINI PROJECT (A1)-CLC (RS)					
Saturday	CAD LAB (A1)-R.N. 306			Geotech (BN)	SA (RS)				
	MINI PROJECT (A2)-CLC (RS)								

	Subject Code	Subject Name	Faculty Name	Lecture/Week
Academics	BCE501	Geotechnical ngineering	Baijnath Nishad	5
	BCE502	Structural Analysis	Rajan Shukla	6
	BCE503	Quantity Estimation and Construction Management	Ankur Kumar	5
	BCE051	Concrete Technology	Vijay Kumar Srivastav	5
	BCE057	Air and Noise Pollution Control	Pratish Kannujiya	5
	BNC502	Indian Tradition, Culture and Society (ITCS)	Rakesh Kumar Tiwari	1
	BCE551	CAD Lab	Pratish Kannujiya	2
	BCE552	Geotechnical Engineering Lab	Baijnath Nishad	2
	BCE553	Quantity Estimation and Management Lab	Ankur Kumar	2
	BCE554	Mini Project	Rajan Shukla	2
Skill Development		HEC		1
		CSEP	Rajan Shukla	1
		PPC	Santosh Kumar Tripathi	1
Placement				
Self-Learning		LIBRARY		1
			Total	**39**

Mr. Baijnath Nishad
HOD-CE

EVALUATION SCHEME

Subject Code	Subject	Sessional Marks	Exam Marks	Total Marks
THEORY SUBJECTS				
BOE404	Energy Science Engineering	30	70	100
BAS401	Technical Communication	30	70	100
BCE401	Materials, Testing & Construction Practices	30	70	100
BCE402	Introduction To Solid Machanics	30	70	100
BCE403	Hydraulic Engineering And Machines	30	70	100
BCC402	Python Programming	30	70	100
PRACTICAL/DESIGN/DRAWING				
BCE551	Material Testing Lab	50	50	100
BCE552	Solid Mechanics Lab	50	50	100
BCE553	Hydraulics & Hydraulic Machine Lab	50	50	100

BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2025-26 (EVEN Semester)

LESSON PLAN

Semester: IV	Section:	Course Code: BOE 404	Contact Hours /week**: 4**
Course name: ENERGY SCIENCE &ENGINEERING			# of credits: 4
Teacher's name: **Mr. ARUN KUMAR**			Designation: AP
Sessional Marks:30		End Semester Examination Marks:70	University Exam Hours: 3

Prerequisites if any:
NA

Content delivery methods:	By Face to face delivery, Tutorial, books etc.

COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	**Energy and its Usage:**Units and scales of energy use, Mechanical energy and transport, Heat energy: Conversion between heat and mechanical energy, Electromagnetic energy: Storage, conversion, transmission and radiation, Introduction to the quantum, energy quantization, Energyin chemical systems and processes, flow of CO2, Entropy and temperature, carnot and Stirling heat engines, Phase change energy conversion, refrigeration and heat pumps, Internal combustion engines, Steam and gas power cycles, the physics of power plants. Solid-state phenomena including photo, thermal and electrical aspects	14	CO1
2	**Nuclear Energy:**Fundamental forces in the universe, Quantum mechanics relevant for nuclear physics, Nuclear forces, energy scales and structure, Nuclear binding energy systematics, reactions and decays, Nuclear fusion, Nuclear fission and fission reactor physics, Nuclear fissionreactor design, safety, operation and fuel cycles	8	CO2

3	**Solar Energy:**Introduction to solar energy, fundamentals of solar radiation and its measurement aspects, Basic physics of semiconductors, Carrier transport, generation and recombination in semiconductors, Semiconductor junctions: metal-semiconductor junction & p-n junction, Essential characteristics of solar photovoltaic devices, First Generation Solar Cells, Second Generation Solar Cells, Third Generation Solar Cells	8	CO3
4	**Conventional & non-conventional energy source:**Biological energy sources and fossil fuels, Fluid dynamics and power in the wind, available resources, fluids, viscosity, types of fluid flow, lift, Wind turbine dynamics and design, wind farms, Geothermal power and ocean thermal energy conversion, Tidal/wave/hydro power	7	CO4
5	**Systems and Synthesis:**Overview of World Energy Scenario, Nuclear radiation, fuel cycles, waste and proliferation, Climate change, Energy storage, Energy conservation. Engineering for Energy conservation: Concept of Green Building and Green Architecture; Green building concepts, LEED ratings; Identification of energy related enterprises that represent the breath of the industry and prioritizing these as candidates; Embodied energy analysis and use as a tool for measuring sustainability. Energy Audit of Facilities and optimization of energy consumption	8	CO5

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO1	Know the basic concept of energy and its application
CO2	Acquire knowledge in the content areas of nuclear and Quantum physics, focusing on concepts that are commonly used in this area.
CO3	Know the fundamentals of solar radiation, storage and its application.
CO4	Know the basic knowledge about wind energy, geothermal power, ocean thermal, tidal power, hydro power energy conversion
CO5	Acquire basic knowledge about Energy conservation, Green Building and Climate change,

Mapping of CO v/s PO:

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	-	2	-		-	-	-	-	-	-
CO2	3	3	-	2	-		-	-	-	-	-	-
CO3	3	2	-	2	-	2	-	-	-	-	-	-
CO4	2	2	-	2	-	2	-	-	-	-	-	-

CO5	2	2	-	2	-	2	-	-	-	-	-	-
Average	2.8	2.4	-	2	-	1.2	-	-	-	-	-	-

	PSO1	**PSO2**	**PSO3**
CO1	1	-	-
CO2	2	-	-
CO3	2	-	-
CO4	2	-	-
CO5	2	-	-
Average	1	-	-

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Gap in the syllabus	N.A.

Topics to be covered beyond syllabus	N.A.

LESSON PLAN

Lecture	Module	Scheduled				Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
1	I	Introduction of subject	L2	CO1					
2		Introduction of Energy	L2						
3		Introduction of types of energy, Units and scales of energy use	L2						
4		Mechanical energy and transport	L2						
5		Heat energy: Conversion between heat and mechanical energy	L2						
6		Electromagnetic energy(EME), Storage, conversion EME: transmission and radiationL2	L2						
7		Introduction to the quantum, Energy quantization. Energy in chemical systems and processes	L2						
8		**Tutorial 1**							
9		Flow of CO2, Entropy and temperature	L2						
10		Carnot and Stirling heat engine , Phase change energy conversion	L2						
11		Refrigeration and heat pumps	L2						
12		, Internal combustion engines	L2						

13		Steam and gas power cycles, physics of power plants, Solid-state phenomena Including photo, Thermal and electrical aspects	L2						
14		**Tutorial 2**	L2						
15		Fundamental forces in the universe	L2						
16		Quantum mechanics relevant for nuclear physics, Nuclear forces, Energy scales and structure	L2						
17		Nuclear binding energy systematic, reactions and decays	L2						
18	**II**	**Tutorial 3**	L2	CO2					
19		Nuclear binding energy systematic, reactions and decay	L2						
20		Nuclear fusion, Nuclear fission and fission reactor physics	L2						
21		Nuclear fission reactor design, safety, operation and fuel cycles	L2						
22		**Tutorial 4**	L2						
23		Introduction to solar energy	L2						
24		fundamentals of solar radiation and its measurement aspects	L2						
25	**III**	Basic physics of semiconductors, Carrier transport, Generation and recombination in semiconductors	L2						
		Semiconductor junctions, Metal-semiconductor junction & p-n junction	L2	CO3					
26		**Tutorial 5**	L2						

27		Essential characteristics of solar, photovoltaic devices	L2						
28		First Generation of Solar Cells	L2						
29		Second Generation of Solar Cells,							
30		Third Generation of Solar Cells	L2						
31		**Tutorial 6**	L2						
32		Biological energy sources and fossil fuels, Fluid dynamics and power in the wind	L2						
33		Fluids, viscosity, types of fluid flow lift, Wind turbine dynamics and design, wind farms	L2						
34	**IV**	**Tutorial 7**	L2	CO4					
35		Geothermal power conversion	L2						
36		Ocean thermal energy conversion	L2						
37		Tidal/wave, hydro power	L2						
38		**Tutorial 8**	L2						
39		Overview of World Energy Scenario,	L2						
40		Nuclear radiation	L2						
41		Fuel cycles, waste and proliferation, Climate change, Energy storage,	L2	CO5					
42		**Tutorial 9**	L2						
43	**V**	Energy conservation, Engineering for energy conservation : Concept of Green Building and Green Architecture	L2						

44		Engineering for energy conservation : Green building concepts,	L2						
45		LEED ratings, Embodied energy analysis and use as a tool for measuring sustainability	L2						
46		**Tutorial 10**	L2						
47		Revision	L2						
48		Revision	L2						
49		Revision	L2						
50		Revision	L2						

Class Test	**Syllabus**
CT-01	**Class 1-Class 22**
CT-02	**Class 23-Class 39**
PRE-AKTU	**Full Syllabus**

***Revised Bloom's Taxonomy (RBT) Levels:**
L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

References:

Text books :(As per University / Board syllabus)

T1.a textbook on Energy Science & Engineering by Dr. Umesh Rathore.

T2. Perspective of Modern Physics, A. Beiser, McGraw-Hill International Editions (1968).

T3. Introduction to Modern Physics, H.S. Mani and G.K.Mehta, East-West Press (1988).

Reference books :(As per University / Board syllabus)

R1. Introduction to Electrodynamics, D. J. Griffiths, Fourth Edition, Prentice Hall (2013).
R2. Introductory Nuclear Physics, R. K. Puri and V.K. Babbar, Narosa Publishing House (1996).
R3. Physics of Solar Cells: From Basic Principles to Advanced Concepts by Peter Wurfel, John Wiley & Sons, 2016

Faculty Sign **HOD's sign**

BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2025-26 (EVEN Semester)

LESSON PLAN

Semester: **I**	Section:	Course Code: **BAS401**	Contact Hours / week**: 2**
Course Name: **Technical Communication**			# of credits: **3**
Teacher's Name: **Mr. Ashutosh Srivastava**			Designation: **Assistant Professor**
Sessional Marks: **30**		End Semester Examination Marks:**70**	University Exam Hours: **3**

Prerequisites if any:
NA

Content delivery methods:	By Face to face delivery, Presentation, Tutorial etc.

COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs

1	**Fundamentals of Technical Communication:** Technical Communication: Features; Distinction between General and Technical Communication; Language as a tool of Communication; Dimensions of Communication: Reading & comprehension; Technical writing: sentences; Paragraph; Technical style: Definition, types & Methods; The flow of Communication: Downward; upward, Lateral or Horizontal; Barriers to Communication.	**5**	**CO1**
2	**Forms of Technical Communication:** Technical Report: Definition & importance; Thesis/Project writing: structure & importance; synopsis writing: Methods; Technical research Paper writing: Methods & style; Seminar & Conference paper writing; Expert Technical Lecture: Theme clarity; Analysis & Findings; 7 Cs of effective business writing: concreteness, completeness, clarity, conciseness, courtesy, correctness, consideration, C.V./Resume writing; Technical Proposal: Types, Structure & Draft.	**6**	**CO2**
3	**Technical Presentation:** Strategies & Techniques Presentation: Forms; interpersonal Communication; Class room presentation; style; method; Individual conferencing: essentials: Public Speaking: method; Techniques: Clarity of substance; emotion; Humour; Modes of Presentation; Overcoming Stage Fear; Audience Analysis & retention of audience interest; Methods of Presentation: Interpersonal; Impersonal; Audience Participation: Quizzes & Interjections.	**7**	**CO3**
4	**Technical Communication Skills:** Interview skills; Group Discussion: Objective & Method; Seminar/Conferences Presentation skills: Focus; Content; Style; Argumentation skills: Devices: Analysis; Cohesion & Emphasis; Critical thinking; Nuances: Exposition narration & Description; effective business communication competence: Grammatical; Discourse competence: combination of expression & conclusion; Socio-linguistic competence: Strategic competence: Solution of communication problems with verbal and non verbal means.	**8**	**CO4**
5	**Dimensions of Oral Communication & Voice Dynamics:** Code and Content; Stimulus & Response; Encoding process; Decoding process; Pronunciation Etiquette; Syllables; Vowel sounds; Consonant sounds; Tone: Rising tone; Falling Tone; Flow in Speaking; Speaking with a purpose; Speech & personality; Professional Personality Attributes: Empathy; Considerateness; Leadership; Competence.	**4**	**CO5**

COURSE OUTCOMES: At the end of the Course, the student will be able to:

CO1	Understand the nature and objective of Technical Communication relevant for the work place as Engineers.
CO2	Utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.
CO3	Imbibe inputs by presentation skills to enhance confidence in face of diverse audience.
CO4	Create a vast know-how of the application of the learning to promote their technical competence.
CO5	Evaluate their efficacy as fluent & efficient communicators by learning the voice-dynamics.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-
Average	-	-	-	-	-	-	-	-	-	-	-	-

	PSO1	PSO2	PSO3
CO1	-	-	-
CO2	-	-	-
CO3	-	-	-
CO4	-	-	-
CO5	-	-	-
Average	-	-	-

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Gap in the syllabus	NA

Topics to be covered beyond syllabus	NA

LESSON PLAN

Lecture	Module	Scheduled				Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
1	I	**Technical Communication: Features; Distinction between General and Technical Communication; Language as a tool of Communication**	L2	CO 1					
2		**Dimensions of Communication; Reading & Comprehension**	L2						
3		**Technical writing: Sentences; Paragraph; Technical style: Definition, Types & Methods**	L2						
4		**The Flow of Communication: Downward; Upward, Lateral or Horizontal**	L2						
5		**Barriers to Communication**	L2						
6		**Technical Report: Definition & importance; Thesis/Project Writing: Structure & Importance**	L2						

7	II	**Synopsis Writing: Methods; Technical Research Paper Writing: Methods & Style**	L2	CO 2					
8		**Seminar & Conference Paper Writing**	L2						
9		**Key-Note Speech: Introduction & Summarization**	L2						
10		**Expert Technical Lecture: Theme Clarity; Analysis & Findings**	L2						
11		**7 Cs of Effective Business Writing: Concreteness, Completeness, Clarity, Conciseness, Courtesy, Correctness, Consideration.**	L2						
12	**III**	**Presentation: Forms; Interpersonal Communication; Class Room Presentation; Style; Method**	L2	CO 3					
13		**Individual conferencing: Essentials**	L2						
14		**Public Speaking: Method**	L2						
15		**Techniques: Clarity of Substance; Emotion;**	L2						
16		**Modes of Presentation; Overcoming Stage Fear: Confident Speaking**							
17		**Audience Analysis & Retention of Audience Interest; Methods of Presentation: Interpersonal**	L2						
18		**Methods of Presentation: Impersonal; Audience Participation: Quizzes & Interjections.**	L2						
19	**IV**	**Interview Skills**	L2	CO					
20		**Group Discussion: Objective & Method**	L2						
21		**Seminar/Conferences Presentation Skills: Focus; Content; Style**	L2						
22		**Argumentation skills: Devices: Analysis**	L2						

23		**Cohesion & Emphasis; Critical Thinking; Nuances: Exposition narration & Description**	L2	4					
24		**Discourse Competence: combination of expression & conclusion; Socio-linguistic Competence**	L2						
25		**Strategic Competence: Solution of communication problems with verbal and non verbal means**	L2						
26		**Kinesics: Definitions; Importance; Features of Body Language.**	L2						
27	V	**Voice Modulation: Quality, Pitch**	L2	CO 5					
28		**Rhythm; intonation; Pronunciation; Articulation**	L2						
29		**Stress & Accent**	L2						
30		**Linguistic Features Of Voice Control: Vowel & Consonant Sounds.**	L2						

Class Test	**Syllabus**
CT – 01	**Class 1 – Class 7**
CT – 02	**Class 8 – Class 18**
PRE – AKTU	**Full Syllabus**

***Revised Bloom's Taxonomy (RBT) Levels:**
L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

Literature

Text Books:

T1) Technical Communication: Principles and Practices by Meenakshi Raman & Sangeeta Sharma, Oxford Univ. Press, 2007, New Delhi.

T2) Personality Development and Soft Skills by Barun K. Mitra, OUP, 2012, New Delhi.
T3) Spoken English- A Manual of Speech and Phonetics by R.K.Bansal & J.B.Harrison, Orient Blackswan, 2013, New Delhi.
T4) Business Correspondence and Report Writing by Prof. R.C. Sharma & Krishna Mohan, Tata McGraw Hill & Co. Ltd., 2001, New Delhi.

Reference Books:

R1) Practical Communication: Process and Practice by L.U.B. Pandey; A.I.T.B.S. Publications India Ltd.; Krishan Nagar, 2014, Delhi.
R2) Modern Technical Writing by Sherman, Theodore A (et.al); Apprentice Hall; New Jersey; U.S.
R3) A Text Book of Scientific and Technical Writing by S.D. Sharma; Vikas Publication, Delhi.
R4) Skills for Effective Business Communication by Michael Murphy, Harward University, U.S.
R5) Business Communication for Managers by Payal Mehra, Pearson Publication, Delhi

Faculty Sign **HOD's sign**

BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2025-26 (EVEN Semester)

LESSON PLAN DETAILS

Semester: IV	Section: A	Course Code: BCE 401	Contact Hours /week**: 5**
Course name: MATERIALS, TESTING & CONSTRUCTION PRACTICES			# of credits: 3
Teacher's Name: **Mr. BAIJNATH NISHAD**			Designation: AP
Sessional Marks:30	End Semester Examination Marks:70		University Exam Hours: 3

Prerequisites if any:			
Subject Code	**Subject Name**	**Description**	**Semester**
NA	NA	NA	NA

Content delivery by using	By Face to face delivery, Presentation, Tutorial etc.

COURSE SYLLABUS (as prescribed by University / Board)

Module No	Unit Contents	Hours	COs
1	Scope of Study of building Materials, economics of the building materials. **Stones: Classification of Stones**–Properties of stones in structural requirements. Bricks: Composition of good brick earth, Various methods of manufacturing of bricks & Testing of Bricks. **Blocks:** Cement and Concrete hollow blocks, Light weight concrete blocks. **Cement:** chemical composition, Manufacturing process, Types and Grades, Properties of cement and Cement mortar, Hydration, Compressive strength, Tensile strength, Soundness and consistency, Setting time. **Concrete:** compositions and grades of concrete various steps in concrete construction –batching, mixing, transporting, compacting, curing, shuttering, jointing. Tests and quality control of concrete.	**14**	**CO1**

	Aggregates –Natural stone aggregates, Industrial by-products (EAF Slag, Steel Slag), Crushing strength, Impact strength, Flakiness, Abrasion Resistance, Grading. **Wood- Structure–** Properties–Seasoning of timber– Classification of various types of woods used in buildings – Defects in timber.		
2	**Paints varnishes and distempers:** Common constituents, types and desirable properties, Cement paints. **Glass:** Ingredients, properties types and use in construction. Insulating Materials Thermal and sound insulating material, desirable properties and types. Paints: Purpose, types, technical terms, ingredients and defects, Preparation and applications of paints to new and old plastered surfaces, wooden and steel surfaces. **Supplementary cementitious materials:** Fly ash, GGBS, Silica fume, Rice husk ash, Calcinated ash (Basic properties and their contribution to concrete strength) **Modern Materials:** Glass and plastic composites, Plywood, laminates, wall and roof panels, Introduction to noise barrier materials for bridges.	**15**	**CO2**
3	Components of building area considerations, Principles of building Planning **Foundation:** Preliminary investigation of soil, safe bearing capacity of soil, Function and requirements of good foundation, types of foundation. **Masonry:** Definition and terms used in masonry. Brick and stone masonry, Bonds in brick and stone masonry work. **Types of walls;** load bearing, partition walls, cavity walls. **Floors:** Requirement of good floor, Components of ground floor, Selection of flooring material. Procedure for laying of Concrete (VDF), Mosaic, Kota, Slate, Marble, Granite, Tile flooring, Stairs: Definitions, technical terms and types of stairs, requirements of good stairs; Geometrical design of RCC dog legged and open-well stairs. Construction Principle and Methods for layout. Introduction to Smart Building construction.	**18**	**CO3**
4	**Lintels, arches, stair cases –** types. Different types of floors Concrete, Mosaic, Terrazzo floors, Pitched, flat roofs. Lean to roof, Coupled Roofs. Trussed roofs – King and Queen post Trusses. R.C.C Roofs, Madras Terrace and Pre-fabricated roofs. **Doors and Windows:** Construction details, types of doors and windows. **Formwork:** Introduction to form work, scaffolding, shoring, under pinning.	**10**	**CO4**
5	**Plumbing Services:** Water Distribution, Sanitary – Lines & Fittings; **Ventilations:** Functional requirements systems of ventilations. Air-conditioning - Essentials and Types; Acoustics – characteristic-absorption – Acoustic design; **Fire protection** – Fire Hazards – Classification of fire resistant materials and constructions. **Plastering and Pointing:** Mortar and its types. Purpose, materials and methods of plastering and	**20**	**CO5**

	pointing: Sand faced plastering, Stucco plastering, lathe plastering, and defects in plastering. Water proofing with various thicknesses. **Damp proofing:** causes, effects and methods. Principles &Methods of building maintenance. Introduction to current construction practices such as :Expanded Polystyrene (EPS), 3D Printing, Pre-Fabricated Panel System		

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO	After completion of the course students will be able to:
BCE401.1	Explain various building materials based on their properties.
BCE401.2	Explain use of non-conventional civil engineering materials.
BCE401.3	Select suitable type of flooring and roofing in the construction process.
BCE401.4	Characterize the concept of plastering, pointing and various other building services.
BCE401.5	Exemplify the various building services and modern construction practices.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	1	1	1	1	1	-	1	1	1	1
CO2	1	1	1	2	1	-	-	-	1	1	1	1
CO3	2	2	1	2	1	-	-	-	-	-	1	1
CO4	2	1	1	1	1	1	-	-	-	-	1	1
CO5	1	1	1	2	1	-	-	-	1	1	1	1
AVERAGE	1.4	1.2	1.0	1.6	1.0	0.4	0.2	-	0.6	0.6	1.2	1.4

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3
BCE401.1	2	1	1
BCE401.2	2	1	1
BCE401.3	2	1	1
BCE401.4	2	1	1
BCE401.5	2	1	1
Average	2	1	1

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Gap in the syllabus	Topics related to load calculation for design of structures, estimation and Irrigation Engineering.

Topics to be covered beyond syllabus	Bridge topics which are help to solve different competitive Exam such as GATE,IES and State AE etc.

LESSON PLAN

Lecture #	Module#	Scheduled					Date	No. Of Students	Faculty Sign
		Topics	RBT Levels	CO Mapping	Date	Topics			
1	I	Scope of Study of building Materials, economics of the building materials.							
2		Stones: Classification of Stones. Properties of stones in structural requirements.							
3		Bricks: Composition of good brick earth, Various							

		methods of manufacturing of bricks , Testing of Bricks	L2	CO1					
4		Various methods of manufacturing of bricks , Testing of Bricks							
5		Cement and Concrete hollow blocks and Light weight concrete blocks, Cement: chemical composition, Manufacturing process.							
6		Types and Grades, Properties of cement and Cement mortar, Hydration, Compressive strength							
7		Tutorial 1							
8		Tensile strength, Soundness, Consistency and setting time, Concrete: compositions and grades of concrete							
9		Various step in concrete construction –batching, mixing, transporting.							
10		Compacting, curing, shuttering, jointing, Tests and quality control of concrete							
11		Natural stone aggregates, Industrial by-products (EAF Slag, Steel Slag), Crushing strength, Impact strength							
12		Flakiness, Abrasion Resistance, Grading, Structure–Properties– Seasoning of timber							
13		Classification of various types of woods used in Buildings, Defects in timber, Horizontal and vertical angle							
14		Tutorial 2							
15		Paints and its Common constituents, Varnishes Common constituents							
16		Distempers: Common constituents, Types and desirable properties, Cement paints.							
17		Glass: Ingredients, properties, Types and Use Of glass in construction.							
18		Desirable properties and types of insulating material							

19	II	Tutorial 3	L2& L3	CO2					
20		Insulating Materials in Thermal							
21		Sound insulating material							
22		Fly ash and GGBS							
23		Silica fume, Rice husk ash							
24		Calcinated ash (Basic properties and their contribution to concrete strength)							
25		Modern Materials: Glass and plastic composites							
26		Plywood, laminates							
27		Wall and roof panels							
28		Introduction to noise barrier materials for bridges.							
29		Tutorial 4							
30	III	Components of building area considerations, Principles of building Planning	L2&	CO3					
31		Foundation: Preliminary investigation of soil							
32		Safe bearing capacity of soil, Function and requirements of good foundation							
33		Types of foundation.							
34		Masonry: Definition and terms used in masonry.							
35		Brick and stone masonry							
36		Bonds in brick and stone masonry work.							
37		Floors: Requirement of good floor, Components of ground floor,							
38		Selection of flooring material.							
39		Tutorial 5							
40		Procedure for laying of Concrete (VDF),							

		.	L3						
41		Mosaic,Kota, Slate							
42		Marble,Granite, Tile flooring							
43		**Stairs:** Definitions, technical terms							
44		Types of stairs, requirements of good stairs;							
45		Geometricaldesign of RCC dog legged and open-well stairs.							
46		Construction Principle and Methods for layout. Introduction to Smart Building construction.							
47		**Tutorial 6**							

48	IV	**Lintels, arches, stair cases** – types. Different types of floors Concrete	L2	CO4					
49		Mosaic, Terrazzo floors,							
50		Pitched, flat roofs. Lean to roof.							
51		Coupled Roofs, Trussed roofs							
52		King and Queen post Trusses. R.C.C Roofs.							
53		**Tutorial 7**							
54		Madras Terrace and Prefabricated roofs. **Doors and Windows:**Construction details							
55		Types of doors and windows.							
56		**Formwork:** Introduction to form work, scaffolding, Shoring, under pinning							
57		**Tutorial 8**							
	V	**Plumbing Services:** Water Distribution, Sanitary – Lines & Fittings;	L2	CO5					
59		Ventilations: Functional requirements systems of ventilations							
60		Air-conditioning - Essentials and Types;							
61		Acoustics –characteristic absorption– Acoustic design;							
62		**Fire protection** – Fire Hazards							
63		Classification of fire resistant materials and constructions.							
64		**Plastering and Pointing:** Mortar and its types.							
65		Purpose, materials							
66		Methods of plastering and pointing.							
67		**Tutorial 9**							

68		Sand faced plastering, Stucco plastering,							
69		lathe plastering, and defects in plastering							
70		Water proofing with various thicknesses.							
71		**Damp proofing:** causes, effects and methods.							
72		Principles &Methods of building maintenance.							
73		Introduction to current construction practices such as :Expanded Polystyrene (EPS),							
74		3DPrinting, Pre-Fabricated Panel System							
75		**Tutorial 10**							

Syllabus for Sessional:

Class Test	**Syllabus**
CT-01	Class 1-Class 26
CT-02	Class 27- Class 55
PRE-AKTU	Full Syllabus

***Revised Bloom's Taxonomy (RBT) Levels:**
L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

Literature:
Text Books: (As prescribed by University)
T1. SK Duggal, "Building Materials" New Age International
T2. Purushothama Raj, "Building Construction Materials & Techniques" Pearson Edu. **T3.** Rangwala, "Building Materials" Charotar Publishing House.

References Books:

R1. BC Punmia, "Building Construction" Laxmi Publication.

R2. Khanna S. K., Justo C.E.G, & Veeraragavan A., "Highway Materials and Pavement Testing", Nem Chand and Bros.
R3. PC Varghese, "Building Materials" PHI

Faculty Sign **HOD's sign**

BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2025-26 (EVEN Semester)

LESSON PLAN DETAILS

Semester: IV	Section: A	Course Code: BCE 401	Contact Hours /week**: 5**
Course name: MATERIALS, TESTING & CONSTRUCTION PRACTICES			# of credits: 3
Teacher's Name: **Mr. BAIJNATH NISHAD**			Designation: AP
Sessional Marks:30	End Semester Examination Marks:70		University Exam Hours: 3

Prerequisites if any:			
Subject Code	**Subject Name**	**Description**	**Semester**
NA	NA	NA	NA

Content delivery by using	By Face to face delivery, Presentation, Tutorial etc.

COURSE SYLLABUS (as prescribed by University / Board)

Module No	Unit Contents	Hours	COs
1	Scope of Study of building Materials, economics of the building materials. **Stones: Classification of Stones**–Properties of stones in structural requirements. Bricks: Composition of good brick earth, Various methods of manufacturing of bricks & Testing of Bricks. **Blocks:** Cement and Concrete hollow blocks, Light weight concrete blocks. **Cement:** chemical composition, Manufacturing process, Types and Grades, Properties of cement and Cement mortar, Hydration, Compressive strength, Tensile strength, Soundness and consistency, Setting time. **Concrete:** compositions and grades of concrete various steps in concrete construction –batching, mixing, transporting, compacting, curing, shuttering, jointing. Tests and quality control of concrete. **Aggregates –**Natural stone aggregates, Industrial by-products (EAF Slag, Steel Slag), Crushing strength, Impact strength, Flakiness, Abrasion Resistance, Grading. **Wood- Structure–** Properties–Seasoning of timber–Classification of various types of woods used in buildings – Defects in timber.	**14**	**CO1**
2	**Paints varnishes and distempers:** Common constituents, types and desirable properties, Cement paints. **Glass:** Ingredients, properties types and use in construction. Insulating Materials Thermal and sound insulating material, desirable properties and types. Paints: Purpose, types, technical terms, ingredients and defects, Preparation and applications of paints to new and old plastered surfaces, wooden and steel surfaces. **Supplementary cementitious materials:** Fly ash, GGBS, Silica fume, Rice husk ash, Calcinated ash (Basic properties and their contribution to concrete strength) **Modern Materials:** Glass and plastic composites, Plywood, laminates, wall and roof panels, Introduction to noise barrier materials for bridges.	**15**	**CO2**
3	Components of building area considerations, Principles of building Planning **Foundation:** Preliminary investigation of soil, safe bearing capacity of soil, Function and requirements of good foundation, types of foundation. **Masonry:** Definition and terms used in masonry. Brick and stone masonry, Bonds in brick and stone		**CO3**

	masonry work. **Types of walls;** load bearing, partition walls, cavity walls. **Floors:** Requirement of good floor, Components of ground floor, Selection of flooring material. Procedure for laying of Concrete (VDF), Mosaic, Kota, Slate, Marble, Granite, Tile flooring, Stairs: Definitions, technical terms and types of stairs, requirements of good stairs; Geometrical design of RCC dog legged and open-well stairs. Construction Principle and Methods for layout. Introduction to Smart Building construction.	**18**	
4	**Lintels, arches, stair cases –** types. Different types of floors Concrete, Mosaic, Terrazzo floors, Pitched, flat roofs. Lean to roof, Coupled Roofs. Trussed roofs – King and Queen post Trusses. R.C.C Roofs, Madras Terrace and Pre-fabricated roofs. **Doors and Windows:** Construction details, types of doors and windows. **Formwork:** Introduction to form work, scaffolding, shoring, under pinning.	**10**	**CO4**
5	**Plumbing Services:** Water Distribution, Sanitary – Lines & Fittings; **Ventilations:** Functional requirements systems of ventilations. Air-conditioning - Essentials and Types; Acoustics – characteristic-absorption – Acoustic design; **Fire protection** – Fire Hazards – Classification of fire resistant materials and constructions. **Plastering and Pointing:** Mortar and its types. Purpose, materials and methods of plastering and pointing: Sand faced plastering, Stucco plastering, lathe plastering, and defects in plastering. Water proofing with various thicknesses. **Damp proofing:** causes, effects and methods. Principles &Methods of building maintenance. Introduction to current construction practices such as :Expanded Polystyrene (EPS), 3D Printing, Pre-Fabricated Panel System	**20**	**CO5**

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO	After completion of the course students will be able to:
BCE401.1	Explain various building materials based on their properties.
BCE401.2	Explain use of non-conventional civil engineering materials.
BCE401.3	Select suitable type of flooring and roofing in the construction process.

BCE401.4	Characterize the concept of plastering, pointing and various other building services.
BCE401.5	Exemplify the various building services and modern construction practices.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	1	1	1	1	1	-	1	1	1	1
CO2	1	1	1	2	1	-	-	-	1	1	1	1
CO3	2	2	1	2	1	-	-	-	-	-	1	1
CO4	2	1	1	1	1	1	-	-	-	-	1	1
CO5	1	1	1	2	1	-	-	-	1	1	1	1
AVERAGE	1.4	1.2	1.0	1.6	1.0	0.4	0.2	-	0.6	0.6	1.2	1.4

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3
BCE401.1	2	1	1
BCE401.2	2	1	1
BCE401.3	2	1	1
BCE401.4	2	1	1
BCE401.5	2	1	1
Average	2	1	1

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Gap in the syllabus	Topics related to load calculation for design of structures, estimation and Irrigation Engineering.

Topics to be covered beyond	Bridge topics which are help to solve different competitive Exam such as GATE,IES and State AE etc.

syllabus	

LESSON PLAN

Lecture #	Module#	Scheduled					Date	No. Of Students	Faculty Sign
		Topics	RBT Levels	CO Mapping	Date	Topics			
1	I	Scope of Study of building Materials, economics of the building materials.	L2	CO1					
2		**Stones**: Classification of Stones. Properties of stones in structural requirements.							
3		**Bricks**: Composition of good brick earth, Various methods of manufacturing of bricks , Testing of Bricks							
4		Various methods of manufacturing of bricks , Testing of Bricks							
5		Cement and Concrete hollow blocks and Light weight concrete blocks, Cement: chemical composition, Manufacturing process.							
6		Types and Grades, Properties of cement and Cement mortar, Hydration, Compressive strength							
7		**Tutorial 1**							
8		Tensile strength, Soundness, Consistency and setting time, **Concrete:** compositions and grades of concrete							
9		Various step in concrete construction –batching, mixing, transporting.							
10		Compacting, curing, shuttering, jointing, Tests and quality control of concrete							

11		Natural stone aggregates, Industrial by-products (EAF Slag, Steel Slag), Crushing strength, Impact strength							
12		Flakiness, Abrasion Resistance, Grading, Structure–Properties– Seasoning of timber							
13		Classification of various types of woods used in Buildings, Defects in timber, Horizontal and vertical angle							
14		**Tutorial 2**							
15		**Paints** and its Common constituents, **Varnishes** Common constituents							
16		**Distempers:** Common constituents, Types and desirable properties, Cement paints.							
17		**Glass:** Ingredients, properties, Types and Use Of glass in construction.							
18		Desirable properties and types of insulating material							
19		**Tutorial 3**							
20		Insulating Materials in Thermal							
21		Sound insulating material							
22	**II**	Fly ash and GGBS							
23		Silica fume, Rice husk ash							
24		Calcinated ash (Basic properties and their contribution to concrete strength)	**L2& L3**	**CO2**					
25		**Modern Materials:** Glass and plastic composites							
26		Plywood, laminates							
27		Wall and roof panels							
28		Introduction to noise barrier materials for bridges.							
29		**Tutorial 4**							
30		Components of building area considerations, Principles of building Planning							

31	III	**Foundation:** Preliminary investigation of soil	L2& L3	CO3					
32		Safe bearing capacity of soil, Function and requirements of good foundation							
33		Types of foundation.							
34		**Masonry:** Definition and terms used in masonry.							
35		Brick and stone masonry							
36		Bonds in brick and stone masonry work.							
37		**Floors:** Requirement of good floor, Components of ground floor,							
38		Selection of flooring material.							
39		**Tutorial 5**							
40		Procedure for laying of Concrete (VDF), .							
41		Mosaic,Kota, Slate							
42		Marble,Granite, Tile flooring							
43		**Stairs:** Definitions, technical terms							
44		Types of stairs, requirements of good stairs;							
45		Geometricaldesign of RCC dog legged and open-well stairs.							
46		Construction Principle and Methods for layout. Introduction to Smart Building construction.							
47		**Tutorial 6**							

48	IV	**Lintels, arches, stair cases** – types. Different types of floors Concrete	L2	CO4					
49		Mosaic, Terrazzo floors,							
50		Pitched, flat roofs. Lean to roof.							
51		Coupled Roofs, Trussed roofs							
52		King and Queen post Trusses. R.C.C Roofs.							
53		**Tutorial 7**							
54		Madras Terrace and Prefabricated roofs. **Doors and Windows:**Construction details							
55		Types of doors and windows.							
56		**Formwork:** Introduction to form work, scaffolding, Shoring, under pinning							
57		**Tutorial 8**							
	V	**Plumbing Services:** Water Distribution, Sanitary – Lines & Fittings;	L2	CO5					
59		Ventilations: Functional requirements systems of ventilations							
60		Air-conditioning - Essentials and Types;							
61		Acoustics –characteristic absorption– Acoustic design;							
62		**Fire protection** – Fire Hazards							
63		Classification of fire resistant materials and constructions.							
64		**Plastering and Pointing:** Mortar and its types.							
65		Purpose, materials							
66		Methods of plastering and pointing.							
67		**Tutorial 9**							

68		Sand faced plastering, Stucco plastering,							
69		lathe plastering, and defects in plastering							
70		Water proofing with various thicknesses.							
71		**Damp proofing:** causes, effects and methods.							
72		Principles &Methods of building maintenance.							
73		Introduction to current construction practices such as :Expanded Polystyrene (EPS),							
74		3DPrinting, Pre-Fabricated Panel System							
75		**Tutorial 10**							

Syllabus for Sessional:

Class Test	**Syllabus**
CT-01	Class 1-Class 26
CT-02	Class 27- Class 55
PRE-AKTU	Full Syllabus

***Revised Bloom's Taxonomy (RBT) Levels:**
L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

Literature:
Text Books: (As prescribed by University)
T1. SK Duggal, "Building Materials" New Age International
T2. Purushothama Raj, "Building Construction Materials & Techniques" Pearson Edu. **T3.** Rangwala, "Building Materials" Charotar Publishing House.

References Books:

R1. BC Punmia, "Building Construction" Laxmi Publication.

R2. Khanna S. K., Justo C.E.G, & Veeraragavan A., "Highway Materials and Pavement Testing", Nem Chand and Bros.
R3. PC Varghese, "Building Materials" PHI

Faculty Sign **HOD's sign**

BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2025-26 (EVEN Semester)

LESSON PLAN

Semester: IV	Section: A	Course Code: BCE 402	Contact Hours /week**: 6**
Course name: Hydraulic Engineering & Machines			# of credits: 3
Teacher's name: **Mr. PRATISH KANNAUJIYA**			Designation: AP
Sessional Marks: 30		End Semester Examination Marks:70	University Exam Hours: 3

Prerequisites if any:
NA

Content delivery methods:	By Face to face delivery, Presentation, Tutorial etc.

COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs

Module No	UNIT Contents	Hours	COs
1	**Introduction:** Basic concepts of free surface flows, velocity and pressure distribution, Mass, energy and momentum principle for prismatic and non-prismatic channels critical, subcritical and super-critical type of flows. Critical depth, concepts of specific energy and specific force. Chezy's and Manning's equations for uniform flow in open channel, Velocity distribution, most efficient channel section, compound sections.	**8**	**1**
2	**Energy-Depth relationship:** Application of specific energy principle for interpretation of open channel phenomena, flow through vertical and horizontal contractions. Equation of gradually varied flow and its limitations, flow classification and surface profiles, integration of varied flow equation by analytical, graphical and numerical methods. Measurements of discharge & velocity – Venturi flume, Standing wave flume, Parshall flume, Broad crested weir, Current meter and Floats.	**8**	**2**
3	**Rapidly varied flow:** Hydraulic jump; Evaluation of the jump elements in rectangular channels on horizontal and sloping beds, energy dissipater, open channel surge, celerity of the gravity wave, deep and shallow water waves.	**8**	**3**
4	**Impulse momentum equation**- Impact of Jets-plane and curved- stationary and moving plates. Pumps: Positive displacement pumps - reciprocating pumps, centrifugal pumps, operation, velocity triangles, performance curves, Cavitation, Multi staging, Selection of pumps.	**8**	**4**

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO1	Understand free surface flow, channel properties, Concept of Specific Energy, Gradually Varied Flow, Rapidly Varied Flow & Surface profiles.
CO2	Apply their knowledge of fluid mechanics & different principles of mass, energy, and momentum for computation of discharge, different flow parameters of channels, GVF, RVF & SVF flows.
CO3	Understand the characteristics, working & uses of different types of Pumps & Turbines.
CO4	Apply different formulas & concepts of velocity triangle for calculation of Efficiencies, Power, and other parameters in different types of Pumps & Turbines..
CO1	Understand free surface flow, channel properties, Concept of Specific Energy, Gradually Varied Flow, Rapidly Varied Flow & Surface profiles.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-
CO3	2	-	-	-	-	-	-	-	-	-	-	-
CO4	3	1	1	-	-	-	1	-	-	-	-	-
Average	2.5	0.25	0.25	-	-	-	0.25	-	-	-	-	-

	PSO1	PSO2	PSO3
CO1	2	1	1
CO2	2	1	1
CO3	2	1	1
CO4	2	1	1
CO5	2	1	1
Average	2	1	1

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Gap in the syllabus	The syllabus lacks advanced computational methods, optimization techniques, and sustainability practices related to fluid machinery and energy systems.

Topics to be covered beyond syllabus	Topics beyond the syllabus could include Computational Fluid Dynamics (CFD), renewable energy applications, sediment transport, smart water management with IoT, advanced turbomachinery design, and sustainability practices for environmental impact assessment.

LESSON PLAN

Lecture	Module	Scheduled				Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
1	I	Basics of Open Channel Flow	L2	CO1					
2		Difference Between Open Channel Flow & Pipe Flow	L2						
3		Basic concepts of free surface flows	L2						
4		Velocity and Pressure distribution	L2						
5		Mass, Energy and Momentum principle	L2						
6		Mass, Energy and Momentum principle							
7		Prismatic and Non-prismatic channels							
8		Prismatic and Non-prismatic channels	L2						

9		Critical, Subcritical and Super-critical type of flows	L2						
10		Critical, Subcritical and Super-critical type of flows							
11		Critical depth & Concepts of specific energy	L2						
12		**Tutorial-1**							
13		Specific force	L2						
14		Application of specific energy principle	L2						
15		Flow through Horizontal & Vertical contractions	L2						
16	**I**	Chezy's equations for uniform flow in open channel	L3						
17		Manning's equations for uniform flow in open channel	L2						
18		Numerical based on Chezy's equations & Manning's equations							
19		Numerical based on Chezy's equations & Manning's equations							
20		Velocity distribution	L2						

21		Most efficient channel section	L2						
22		Compound sections	L2						
23		**Tutorial-2**	L3						
24		Non- Uniform flow 1							
25		Energy-Depth relationship	L3						
26		Gradually Varied Flow	L3						
27		Equation of gradually varied flow	L3						
28		Flow classification	L2						
29		Surface profiles	L3						
30	**II**	Surface profiles		**CO2**					
31		**Tutorial-3**	L2						
32		Integration of varied flow equation by analytical graphical & numerical methods	L3						
33		Integration of varied flow equation by analytical graphical & numerical methods							
34		Measurements of discharge & velocity	L3						
35		Venturi flume, Standing wave flume, Parshall	L3						
36		Venturi flume, Standing wave flume, Parshall flume							

37		Broad crested weir, Current meter and Floats	L3						
38		Broad crested weir, Current meter and Floats							
39		**Tutorial-4**							
40		Rapidly Varied flow	L2						
41		Hydraulic jump	L2						
42		Types of Hydraulic jump	L2						
43		Evaluation of the jump elements in rectangular channels on horizontal & sloping beds	L2						
44	**III**	Energy dissipater		**CO3**					
45		**Tutorial-5**	L2						
46		Open channel surge	L2						
47		Types of Surge	L3						
48		Celerity of the gravity wave	L3						
49		Deep and shallow water waves.	L3						
50		**Tutorial-6**							
51	**IV**	Impulse momentum equation	L3						

52		Impact of Jets on Plane Plates	L2						
53		Impact of Jets on curved- stationary and moving plates	L3						
54		Pumps	L2						
55		Positive displacement pumps	L2						
56		Reciprocating pumps	L3						
57		Centrifugal pumps	L3						
58		**Tutorial-7**	L2	**CO4**					
59		Velocity Triangles	L3						
60		Numerical on Velocity Triangles	L3						
61		Performance curves	L3						
62		Cavitation	L3						
63		Multi staging	L3						
64		Selection of pumps	L3						
65		**Tutorial-8**	L2						
66	**V**	Roto dynamic Machines	L3	**CO5**					

67		Pelton Turbine	L3						
68		Numerical on Velocity Triangles	L3						
69		Equations for jet and rotor size,	L3						
70		Efficiency	L3						
71		Reaction turbines							
72		**Tutorial-9**	L3						
73		Unit quantities	L2						
74		Similarity laws	L2						
75		Cavitations	L2						
76		Characteristic curves	L3						
77		**Tutorial-10**	L2						

lass Test	**Syllabus**
CT-01	**Class 1-Class 29**
CT-02	**Class 30-Class 60**
PRE-AKTU	**Full Syllabus**

***Revised Bloom's Taxonomy (RBT) Levels:**
L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

Text Books

1. Saiful Islam, " Hydraulics & Hydraulic Machines", Vayu Education of India Ltd.

2. K. Subramanya, , Flow through Open Channels, TMH, New Delhi

Reference Books

1. Modi & Seth "Hydraulics & Fluid Mechanics" Standard Publications.

2. RK Bansal "Fluid Mechanics and Hydraulic Machines" Laxmi Publication

Faculty Sign **HOD's sign**

BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OFCIVIL ENGINEERING

ACADEMIC YEAR 2025-26 (EVEN Semester)

LESSON PLAN DETAILS

Semester: IV	Section: A	Course Code: BCC401	Contact Hours /week**: 12**
Course Name:Python			# of credits:2
Faculty name:Mrs. Pooja Singh			Designation: AssistantProfessor
Sessional Marks:30		End Semester Examination Marks:70	University Exam Hours: 2

Prerequisites if any:

PYTHON

Content delivery methods:	By Face-to-face delivery, Presentation.

COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	**INTRODUCTION TO CYBER CRIME**: Cybercrime- Definition and Origins of the word Cybercrime and Information Security, who are Cybercriminals? Classifications of Cybercrimes, A Global Perspective on Cybercrimes, Cybercrime Era: Survival Mantra for the Netizens. Cyber offenses: How Criminals Plan the Attacks, Social Engineering, Cyber stalking, Cybercafe and Cybercrimes, Botnets: The Fuel for Cybercrime, Attack Vector.	**07**	**CO1**
2	**Python Program Flow Control Conditional blocks:** if, else and else if, Simple for loops in python, For loop using ranges, string, list and dictionaries. Use of while loops in python, Loop manipulation using pass, continue, break and else. Programming using Python conditional and loop blocks.	**09**	**CO2**
3	**Python Complex data types:** Using string data type and string operations, Defining list and list slicing, Use of Tuple data type. String, List and Dictionary, Manipulations Building blocks of python programs, string manipulation methods, List manipulation. Dictionary manipulation, Programming using string, list and dictionary in-built functions. Python Functions, Organizing python codes using functions.	**20**	**CO3**
4	**Python File Operations:** Reading files, writing files in python, Understanding read functions, read(), readline(), redlines(). Understanding writing functions, write() and write lines() Manipulating file pointer using seek Programming, using file operations	**12**	**CO4**
5	**Python packages:** Simple programs using the built-in functions of packages matplotlib, numpy, pandas etc. GUI Programming: Tainter introduction, Tainter and Python Programming, Tk Widgets, Tainter	**12**	**CO5**

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO1	**BCC 401**	Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.	L2
CO2	**BCC 401**	Express proficiency in the handling of strings and functions	L2

CO3	**BCC 401**	Utilize the concept of SDT, intermediate code generation & three address codes.	L2
CO4	**BCC 401**	Classify the concept of symbol table, storage allocation & error detection & recovery.	L2
CO5	**BCC 401**	Apply the different code optimization techniques.	L2

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	1	1	1	-	-	-	-	-	-	2
CO2	2	2	1	1	1	-	-	-	-	-	-	2
CO3	2	2	1	1	1	-	-	-	-	-	-	2
CO4	2	2	1	1	1	-	-	-	-	-	-	2
CO5	2	2	1	1	1	-	-	-	-	-	-	2
Average	2.00	2.00	1.00	1.00	1.00	-	-	-	-	-	-	2.00

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3
CO1	1	2	1
CO2	1	2	1
CO3	1	2	1
CO4	1	2	1
CO5	1	2	1
Average	1.00	2.00	1.00

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

Topics to be covered beyond syllabus	Peephole Optimization

LESSON PLAN

Lecture	Module	Scheduled		Conducted						
		Topic	***RBT Levels**	**C O Mapping**	**Date**	**Topic**	**Date**	**No. Of Students**	**Faculty Sign**
1	I	Introduction to programming language	L2	CO1					
2		Introduction to python	L2	CO1					
3		Python variables	L2	CO1					
4		Python basic Operators	L2	CO1					
5		Understanding python blocks	L2	CO1					
6		Elements of Python, Type Conversion	L2	CO1					
7		Python Data Types	L2	CO1					

8		Declaring and using Numeric data types: int, float etc.	L2	CO1					
9		Test	L2	CO1					
10		if, else and else if	L2	CO1					
11		Simple for loops in python	L2	CO1					
12		For loop using ranges	L2	CO					
13	II	string, list and dictionaries	L3	CO2					
14		Use of while loops in python	L2	CO2					
15		Loop manipulation using pass	L2	CO2					
16		Continue	L2	CO2					
17		break and else	L2	CO2					
18		Programming using Python conditional and loop blocks	L2	CO2					
19		TEST	L1	CO2					
20		String	L3	CO3					
21		String	L3	CO3					
22		Strings	L3	CO3					

23		Strings: Length of the string	L3	CO3					
24		Perform Concatenation and Repeat operations in it	L3	CO3					
25		Indexing and Slicing of Strings	L4	CO3					
26		List and dictionary	L2	CO3					
27		Manipulations Building blocks of python programs	L3	CO4					
28		string manipulation methods.	L3	CO4					
29		Dictionary manipulation	L3	CO4					
30		Programming using string	L3	CO4					
31		list and dictionary in-built functions	L3	CO4					
32		Python Functions	L2	CO4					
33		Organizing python codes using functions	L2	CO4					
34		Reading files	L2	CO4					
35		Python programming with IDE		CO4					
36		Writing files in python, Understanding read functions		CO5					
37		read(), readline(), readlines()		CO5					
38		Understanding write functions		CO5					

39		write() and WriteLines() Manipulating file pointer using seek Programming		CO5					
40		using file operations		CO5					
41		Simple programs using the built-in functions of packages matplotlib		CO5					
42		NumPy, pandas etc.		CO5					
43		GUI Programming:		CO5					
44		Tkinter introduction		CO5					
45		Tkinter and Python Programming		CO5					
46		Tk Widgets		CO5					
47		Tkinter examples		CO5					
48		**Revesion**							

Class Test	**Syllabus**
CT-01	Class 1-Class 19
CT-02	Class 20-Class 34
PRE-AKTU	Full Syllabus

***Revised Bloom's Taxonomy (RBT) Levels:**
L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

TextBooks:

T1. Aho, Sethi & Ullman, "Compilers: Principles, Techniques and Tools", PearsonEducation.
T2. V Raghvan, "Principles of Compiler Design", TMH.

Faculty Sign **HOD's Sign**

BUDDHA GROUP OF INSTITUTIONS

SKILL DEVELOPMENT

TECHEDGE – LESSON PLAN

(2nd Year CE, Auto CAD)

Sl. #	Topic	Faculty scheduled to handle	Date	Faculty handled	# of students	Mapped to POs
1	Introduction to Auto Introduction to Drawing tool,	Er. Arun Kumar				

	modify tool, mouse function, ortho ,osnap sketching					
2	Introduction to Circle ,Rectangle,Trim, Extend	Er. Arun Kumar				
3	Introduction to Dimension anddimension edit function,Using offset command	Er. Arun Kumar				
4	**Project 1 (House plan1 BHK)**	Er. Arun Kumar				
5	**Doubt Session**	Er. Arun Kumar				
6	Introduction to line type and line type edit function.Using Text and Hatching in auto CAD	Er. Arun Kumar				
7	Rotate, Copy, Mirror, Fillet command, polyline, arc, polygon command	Er. Arun Kumar				
8	using Stretch, scale, array command	Er. Arun Kumar				
9	**Project 2 (House Plan 2 & 3 BHK)**	Er. Arun Kumar				
10	**Doubt Session**	Er. Arun Kumar				
11	Concept of Layer	Er. Arun Kumar				
12	Concept of make block and insert block	Er. Arun Kumar				
13	Using Annotation in Auto CAD	Er. Arun Kumar				
14	**Project 4 (Creating your own house plan)**	Er. Arun Kumar				
15	**Doubt Session**	Er. Arun Kumar				

Dept. Coordinator

Mr. Anil Chaudhary

Director – Skill Development