



DEPARTMENT OF COMPUTER SCIENCE

Lesson Plan

Session: Jan -Jul, 2026

Semester: 6th

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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Time Table

Evaluation scheme

Subject 1- Software Engineering

Subject 2- Big Data & Analytics

Subject 3- Computer Network

Subject 4- Machine Learning Techniques

Subject 5- Constitution of India

Subject 6- Idea to Business Model

CSEP - Communication Skill Enhancement Program

PPC - Placement Preparation Classes-English

PPC - Placement Preparation Classes-Maths


Techedge-

Lab 1 - Software Engineering Lab

Lab 2 - Big Data & Analytics Lab

Lab 3 - Computer Network Lab

TIME TABLE

	BUDDHA INSTITUTE OF TECHNOLOGY, GIDA, GORAKHPUR									
Department of Computer Science & Allied										
CLASS TIME TABLE (2025-26 EVEN SEMESTER)										
Program: COMPUTER SCIENCE (CS)				w.e.f.: 02 FEBRUARY 2026		SEMESTER: 6-E		ROOM NO: 126 (Block-3)		
Day / Time	9:10-10:05 AM		10:05-11:00 AM		11:15-12:10 PM	12:10-01:05PM		01:45-2:40 PM	2:40-3:35 PM	3:35-4:30 PM
MON	SE (SUP)		CN (RKR)		SE Lab-E1-SUP-L-304			PPC-English (Mr. SKT)	CD (AT)	BD (SKH)
					CD Lab-E2-AT-L-305					
TUES	BD (SKH)		CD (AT)		CN (RKR)	SE (SUP)		BD (SKH)	IBM (NS)	PPC-English (Mr. SKT)
WED	PPC-Math (Mr. DP)		CD (AT)		Techedge-JK-L-307			SE (SUP)	CN (RKR)	IBM (NS)
THU	CD (AT)		COI (Ms. MS)		CN Lab-E1-RKR-L-304			SE (SUP)	CN (RKR)	BD (SKH)
					SE Lab-E2-SUP-L-305					
FRI	PPC-Math (Mr. DP)		CN (RKR)		CD Lab-E1-AT-L-304			SE (SUP)	CD (AT)	IBM (NS)
					CN Lab-E2-RKR-L-305					
SAT	Techedge-JK-L-307				BD (SKH)	IBM (NS)				

EVALUATION SCHEME

Subject Code	Subject	Sessional Marks	Exam Marks	Total Marks
THEORY SUBJECTS				
BCS-601	Software Engineering	30	70	100
BCS-602	Big Data & Analytics	30	70	100
BCS-603	Computer Network	30	70	100
BCDS-062	Machine Learning Techniques	30	70	100
BNC-601	Constitution of India	30	70	100
BOE-060	Idea to Business Model	30	70	100
PRACTICAL/DESIGN/DRAWING				
BCS-651	Software Engineering Lab	50	50	100
BCDS-651	Big Data & Analytics Lab	50	50	100
BCS-653	Computer Network Lab	50	50	100

LESSON PLAN DETAILS



BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ALLIED

PROGRAM: COMPUTER SCIENCE

(ACADEMIC YEAR 2025-26 (EVEN Semester))

Semester: VI	Section: B	Course Code: BCS 601	Contact Hours /week: 5
Course name: Software Engineering			# of credits: 4
Teacher's name: Ms. Supriya Pandey			Designation: Assist. Prof.
Sessional Marks: 30	End Semester Examination Marks: 70		University Exam Hours: 3

Prerequisites if any:			
Course Code	Course Name	Topic/s	Semester
BCS-101	Programming for Problem Solving	Operators, Decision control statement, looping & Translators	I
BCS-301	Data Structures	Stack	III

Content delivery by using	Chalk and Board, PPT and Video Lectures
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COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	Introduction: Introduction to Software Engineering, Software Components, Software Characteristics, Software Crisis, Software Engineering Processes, Similarity and Differences from Conventional Engineering Processes, Software Quality Attributes. Software Development Life Cycle (SDLC) Models: Water Fall Model, Prototype Model, Spiral Model, Evolutionary Development Models, Iterative Enhancement Models.	14	CO1
2	Software Requirement Specifications (SRS): Requirement Engineering Process: Elicitation, Analysis, Documentation, Review and Management of User Needs, Feasibility Study, Information Modelling, Data Flow Diagrams, Entity Relationship Diagrams, Decision Tables, SRS Document, IEEE Standards for SRS. Software Quality Assurance (SQA): Verification and Validation, SQA Plans, Software Quality Frameworks, ISO 9000 Models, SEI-CMM Model.	18	CO2
3	Software Design: Basic Concept of Software Design, Architectural Design, Low Level Design: Modularization, Design Structure Charts, Pseudo Codes, Flow Charts, Coupling and Cohesion Measures, Design Strategies: Function Oriented Design, Object Oriented Design, Top-Down and Bottom-Up Design. Software Measurement and Metrics: Various Size Oriented Measures: Halstead's Software Science, Function Point (FP) Based Measures, Cyclomatic Complexity Measures: Control Flow Graphs.	14	CO3
4	Software Testing: Testing Objectives, Unit Testing, Integration Testing, Acceptance Testing, Regression Testing, Testing for Functionality and Testing for Performance, Top-Down and Bottom-Up Testing Strategies: Test Drivers and Test Stubs, Structural Testing (White Box Testing), Functional Testing (Black Box Testing), Test Data Suit Preparation, Alpha and Beta Testing of Products. Static Testing Strategies: Formal Technical Reviews (Peer Reviews), Walk Through, Code Inspection, Compliance with Design and Coding Standards.	11	CO4
5	Software Maintenance and Software Project Management: Software as an Evolutionary Entity, Need for Maintenance, Categories of Maintenance: Preventive, Corrective and Perfective Maintenance, Cost of Maintenance, Software Re- Engineering, Reverse Engineering. Software Configuration Management Activities, Change Control Process, Software Version Control, An Overview of CASE Tools. Estimation of Various Parameters such as Cost, Efforts, Schedule/Duration, Constructive Cost Models (COCOMO), Resource Allocation Models, Software Risk Analysis and Management.	9	CO5

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

C01	Summarize the various software characteristics and different software development models.
C02	Demonstrate the contents of a SRS, designing strategies and basic software quality assurance practices.
C03	Utilize various software metrics in software design.
C04	Illustrate various testing strategy for software systems.
C05	Classify several maintenance strategies and management tools in software system.

Mapping of CO v/s PO:

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012
C01	1	1	1	-	-	-	-	-	1	-	-	1
C02	1	1	1	-	-	-	-	-	1	-	-	1
C03	1	1	1	-	-	-	-	-	1	-	-	1
C04	1	1	1	-	-	-	-	-	1	-	-	1
C05	1	1	1	-	-	-	-	-	1	-	-	1
Average	1	1	1	-	-	-	-	-	1	-	-	1

	PS01	PS02	PS03
C01	1	1	1
C02	1	1	1
C03	1	1	1
C04	1	1	1
C05	1	1	1

Average	1	1	1
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Correlation levels: 1-Slight (Low) 2-Moderate (Medium)

3-Substantial (High)

Gap in the syllabus	Software quality factors
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Topics to be covered beyond syllabus	Tools used in creating software
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LESSON PLAN

Lecture #	Module#	Scheduled				Conducted			
		Topics	*RBT Levels	CO Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
1	I	Introduction to Software Engineering	L2						
2		Software Components, Software Characteristics	L2						
3		Software Crisis	L2						
4		Software Engineering Processes	L2						
5		Similarity and Differences from Conventional Engineering Processes,	L2						
6		Software Quality Attributes	L2						

7		Tutorial-1		CO1						
8		Software Development Life Cycle (SDLC) Models: Water Fall Model	L2							
9		Software Development Life Cycle (SDLC) Models: Water Fall Model (Cont.)	L2							
10		Spiral Model	L2							
11		Prototype Model	L2							
12		Evolutionary Development Models , Iterative Enhancement Models	L2							
13		Tools used in creating software	L2							
14		Tutorial-2								
15	II	Requirement Engineering Process: Elicitation Analysis	L2	CO2						
16		Documentation Review and Management of User Needs Feasibility Study	L2							
17		Information Modelling	L2							
18		Data Flow Diagrams	L2							
19		Data Flow Diagrams (Cont.)	L2							
20		Entity Relationship Diagrams	L2							
21		Entity Relationship Diagrams (Cont.)	L2							
22		Decision Tables	L2							
23		Tutorial-3								

24		SRS Document	L2						
25		IEEE Standards for SRS	L2						
26		Software Quality Assurance (SQA): Verification and Validation	L2						
27		SQA Plans	L2						
28		Software Quality Frameworks	L2						
29		ISO 9000 Models	L2						
30		SEI-CMM Model	L2						
31		Software Quality Factors	L2						
32		Tutorial-4							
33	III	Software Design Software Design: Basic Concept of Software Design	L2	C03					
34		Architectural Design	L2						
35		Revision-1	L2						
36		Low Level Design: Modularization	L2						
37		Design Structure Charts Pseudo Codes	L2						
38		Tutorial-5							
39		Flow Charts, Coupling and Cohesion Measures							
40		Revision-2	L2						
41		Coupling and Cohesion Measures (Cont.)	L2						

42		Design Strategies: Function Oriented Design, Object Oriented Design	L2						
43		Top-Down and Bottom- Up Design, Software Measurement and Metrics							
44		Various Size Oriented Measures: Halestead's Software Science, Function Point (FP) Based Measures, Cyclomatic Complexity Measures: Control Flow Graphs	L3						
45		Revision-3	L3						
46		Tutorial-6							
47		Software Testing: Testing Objectives, Unit Testing, Integration Testing, Acceptance Testing, Regression Testing	L2						
48		Testing for Functionality and Testing for Performance							
49	IV	Top Down and Bottom- Up Testing Strategies: Test Drivers and Test Stub	L2	CO4					
50		Revision-4							
51		Tutorial-7							
52		Structural Testing (White Box Testing), Functional	L2						

		Testing (Black Box Testing)						
53		Test Data Suit Preparation	L2					
54		Alpha and Beta Testing of Products Static Testing Strategies: Formal Technical Reviews (Peer Reviews)	L2					
55		Revision-5						
56		Walk Through, Code Inspection, Compliance with Design and Coding Standards.	L2					
57		Tutorial-8						
58		Testing Strategies: Formal Technical Reviews, Walk Through, Code Inspection, Compliance with Design and Coding Standards	L2					
59		Software Maintenance and Software Project Management: Software as an Evolutionary Entity, Need for Maintenance	L2					
60		Revision-6						
61		Tutorial-9						
62	V	Categories of Maintenance: Preventive, Corrective and Perfective Maintenance, Cost of Maintenance, Software Re- Engineering, Reverse Engineering, Software	L2	C05				

		Configuration Management Activities, Change Control Process,							
63		Software Version Control, an Overview of CASE Tools Estimation of Various Parameters such as Cost, Efforts, Schedule/Duration,	L2						
64		Constructive Cost Models (COCOMO), Resource Allocation Models, Software Risk Analysis and Management							
65		Tutorial-10							
66		Revision-7							

Class Test	Syllabus
CT-01	
CT-02	
PUT	

***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. Rajib Mall, Fundamentals of Software Engineering, PHI Publication.

T2. KK Aggarwal and Yogesh Singh, Software Engineering, New Age International Publishers.

Faculty Sign

Program Head

LESSON PLAN DETAILS

Semester: VI	Section: E	Course Code: BCS 603	Contact Hours /week: 5
Course Name: Computer Network			# of credits: 4
Faculty name: Dr. Ranjeet Kumar Rai			Designation: Associate Professor
Sessional Marks: 30		End Semester Examination Marks:70	University Exam Hours: 3

Prerequisites if any:			
Course Code	Course Name	Topic/s	Semester
BCS 301	Data Structure	Understand how we take input many different types and apply search (Array, Search, Pointer, etc.)	III

Content delivery methods:	By Face-to-face delivery, Presentation, Tutorial etc.
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COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	Introductory Concepts: Goals and applications of networks, Categories of networks, Organization of the Internet, ISP, Network structure and architecture (layering principles, services, protocols and standards), The OSI reference model, TCP/IP protocol suite, Network devices and components. Physical Layer: Network topology design, Types of connections, Transmission media, Signal transmission and encoding, Network performance and transmission impairments, Switching techniques and multiplexing.	14	C01
2	Link layer: Framing, Error Detection and Correction, Flow control (Elementary Data Link Protocols, Sliding Window protocols). Medium Access Control and Local Area Networks: Channel allocation, Multiple access protocols, LAN standards, Link layer switches & bridges (learning bridge and spanning tree algorithms).	14	C02
3	Network Layer: Point-to-point networks, Logical addressing, Basic internetworking (IP, CIDR, ARP, RARP, DHCP, ICMP), Routing, forwarding and delivery, Static and dynamic routing, Routing algorithms and protocols, Congestion control algorithms, IPv6.	12	C03
4	Transport Layer: Process-to-process delivery, Transport layer protocols (UDP and TCP), Multiplexing, Connection management, Flow control and retransmission, Window management, TCP Congestion control, Quality of service.	12	C04
5	Application Layer: Domain Name System, World Wide Web and Hyper Text Transfer Protocol, Electronic mail, File Transfer Protocol, Remote login, Network management, Data compression, Cryptography – basic concepts.	12	C05

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

C01	Recognize basic concepts of Computer Networks, OSI reference model and physical Layer Connectivity.
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C02	Apply channel allocation, framing, error and flow control techniques.
C03	Apply the functions of Network Layer i.e. Logical addressing, sub-netting & Routing Mechanism.
C04	Explain the different Transport Layer function (Port addressing, Connection Management, etc.) and Session Layer function (Create, Manage & Terminate Session)
C05	Explain the functions offered by presentation (Encryption & Decryption) and application layer and their Implementation.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	2	2	-	-	-	-	-	-	-	-	-	2
C02	2	2	2	3	-	-	-	-	-	-	-	2
C03	2	3	2	3	-	-	-	-	-	-	-	2
C04	2	2	-	-	-	-	-	-	-	-	-	2
C05	2	2	-	3	-	-	-	-	-	-	-	2
Average	2	2	2	3	-	-	-	-	-	-	-	2

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3
C01	2	2	2
C02	2	2	2
C03	2	2	2
C04	2	2	2
C05	2	2	2
Average	2	2	2

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

Gap in the syllabus	Basic knowledge of networking concepts and Networking devices.
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Topics to be covered beyond syllabus	Basic Network tools and concepts.
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LESSON PLAN

Lecture	Module	Scheduled			Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students
1	I	Goals and applications of networks, Categories of networks	L2	CO1				
2		Goals and applications of networks, Categories of networks	L2	CO1				
3		Organization of the Internet, ISP	L2	CO1				

4		Network structure and architecture (layering principles, services, protocols and standards)	L2	C01				
5		Network structure and architecture (layering principles, services, protocols and standards)	L2	C01				
6		The OSI reference model, TCP/IP protocol suite, Network devices and components	L3	C01				
7		Tutorial 1		C01				
8		The OSI reference model, TCP/IP protocol suite, Network devices and components	L3	C01				
9		Network topology design, Types of connections	L2	C01				
10		Network topology design, Types of connections	L2	C01				
11		Transmission media	L2	C01				
12		Signal transmission and encoding	L2	C01				
13		Network performance and transmission impairments	L3	C02				
14		Tutorial 2		C02				
15	II	Switching techniques and multiplexing	L2	C02				
16		Framing	L2	C02				

17		Error Detection	L2	C02					
18		Error Detection	L2	C02					
19		Flow control (Elementary Data Link Protocol)	L2	C02					
20		Tutorial 3		C02					
21		Medium Access Control and Local Area Networks, Channel allocation	L2	C02					
22		Medium Access Control and Local Area Networks, Channel allocation	L2	C02					
23		Multiple access protocols	L2	C02					
24		LAN standards, Link layer switches & bridges	L3	C02					
25		Spanning tree algorithms	L2	C03					
26		Tutorial 4		C03					
27	III	Point-to-point networks, Logical addressing	L2	C03					
28		Basic internetworking	L2	C03					
29		IP, CIDR, ARP	L2	C03					
30		RARP, DHCP, ICMP	L3	C03					

31		RARP, DHCP, ICMP	L3	C03				
32		Tutorial 5		C03				
33		Revision Class 1		C03				
34		Routing, forwarding and delivery	L3	C03				
35		Static and dynamic routing	L2	C03				
36		Routing algorithms and protocols	L2	C03				
37		Congestion control algorithms, IPv6	L2	C04				
38		Tutorial 6		C04				
39	IV	Process-to-process delivery	L2	C04				
40		Transport layer protocols (UDP and TCP)	L2	C04				
41		Revision Class 2		C04				
42		Multiplexing	L2	C04				
43		Connection management	L2	C04				
44		Tutorial 7		C04				

45		Flow control and retransmission	L2	C04				
46		Revision Class 3		C04				
47		Window management	L2	C04				
48		Revision Class 4		C04				
49		Quality of service	L2	C04				
50		Tutorial 8		C04				
51	V	Revision Class 5		C05				
52		Domain Name System	L2	C05				
53		World Wide Web and Hyper Text Transfer Protocol	L2	C05				
54		Electronic mail	L2	C05				
55		File Transfer Protocol	L2	C05				
56		Revision Class 6		C05				
57		Tutorial 9		C05				
58		Remote login	L2	C05				
59		Data compression	L3	C05				
60		Network management	L2	C05				
61		Cryptography – basic concepts	L3	C05				

62		Tutorial 10		C05					
63		Revision Class 7		C05					

Class Test	Syllabus
CT-01	Class 1-Class 30
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. Behrouz Forouzan, “Data Communication and Networking”, McGraw Hill
2. Andrew Tanenbaum “Computer Networks”, Prentice Hall.
3. Peterson and Davie, “Computer Networks: A Systems Approach”, Morgan Kaufmann.

Reference Books:

1. William Stallings, “Data and Computer Communication”, Pearson.
2. Kurose and Ross, “Computer Networking- A Top-Down Approach”, Pearson.

Faculty Sign

HOD’s Sign

LESSON PLAN

Semester: VI	Section: E	Course Code: BCS 061	Contact Hours /week: 4
Course name: Big Data			# of credits: 3

Teacher's name: Mr. Salman Khan		Designation: Asst. Prof.
Sessional Marks: 30	End Semester Examination Marks: 70	University Exam Hours: 3

Content delivery by using	Chalk and Board, PPT and Video Lectures
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COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	Introduction to Big Data: Types of digital data, history of Big Data innovation, introduction to Big Data platform, drivers for Big Data, Big Data architecture and characteristics, 5 Vs of Big Data, Big Data technology components, Big Data importance and applications, Big Data features – security, compliance, auditing and protection, Big Data privacy and ethics, Big, Data Analytics, Challenges of conventional systems, intelligent data analysis, nature of data, analytic processes and tools, analysis vs reporting, modern data analytic tools.	06	CO1
2	Hadoop: History of Hadoop, Apache Hadoop, the Hadoop Distributed File System, components of Hadoop, data format, analysing data with Hadoop, scaling out, Hadoop streaming, Hadoop pipes, Hadoop Echo System. Map Reduce: Map Reduce framework and basics, how Map Reduce works, developing a Map Reduce application, unit tests with MR unit, test data and local tests, anatomy of a Map Reduce job run, failures, job scheduling, shuffle and sort, task execution, Map Reduce types, input formats, output formats, Map Reduce features, Real-world Map Reduce	08	CO2
3	HDFS (Hadoop Distributed File System): Design of HDFS, HDFS concepts, benefits and challenges, file sizes, block sizes and block abstraction in HDFS, data replication, how does HDFS store, read, and write files, Java interfaces to HDFS, command line interface, Hadoop file system interfaces, data flow, data ingest with Flume and Scoop, Hadoop archives, Hadoop I/O: compression, serialization, Avro and file-based data structures. Hadoop Environment: Setting up a Hadoop cluster, cluster specification, cluster setup and installation, Hadoop configuration, security in Hadoop, administering Hadoop, HDFS monitoring & maintenance, Hadoop benchmarks, Hadoop in the cloud	08	CO3

C02	3	3	2	3	2	1	-	-	-	-	-	-
C03	2	3	3	3	2	-	-	-	-	-	-	-
C04	3	3	3	2	3	2	1	-	-	-	-	-
C05	3	3	2	2	3	3	2	1	-	-	-	-
Average	2.8	2.8	2.6	2.4	2.2	1.6	0.6	0.2				

	PS01	PS02	PS03
C01	3	2	3
C02	3	3	2
C03	2	3	3
C04	3	3	2
C05	3	3	3
Average	2.8	2.8	2.6

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

Gap in the syllabus	Missing Industry-Oriented Case Studies
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Topics to be covered beyond syllabus	Case Study on Big Data Analytics
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LESSON PLAN

Lecture #	Module #	Topics	*RBT Levels	CO Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
1	I	Introduction to Big Data, Definition and Characteristics	L2	CO1					
2		Big Data Applications in Business	L2						
3		History of Big Data	L2						
4		Big Data Architecture	L2						
5		Challenges of Conventional System	L2						
6		5 Vs of Big Data	L2						
7		Tutorial-1							
8		Big Data privacy and ethics,	L2						

9	II	Big Data Analytics	L2	CO2				
10		Intelligent data analysis, nature of data	L2					
11		Analytic processes and tools, analysis vs reporting,	L2					
12		Modern data analytic tools.	L2					
13		Tutorial-2						
14		Introduction to Hadoop	L2					
15		The Hadoop Distributed File System, components of Hadoop, data format, analysing data with Hadoop, scaling out	L2					
16		Hadoop streaming,	L2					
17		Hadoop pipes, Hadoop Echo System.	L2					
18		Tutorial-3	L2					
19		Case Study on Big Data Analytics	L2					
20		Introduction to MapReduce	L2					
21		How Map Reduce works, developing a Map Reduce application	L2					
22	Unit tests with MR unit, test data and local tests, anatomy of a Map Reduce job run, failures, job scheduling, shuffle and sort, task execution,	L2						

23	Map Reduce types, input formats, output formats, Map Reduce features, Real-world Map Reduce	L2						
24	Tutorial-4							
25	Introduction to HDFS	L2						
26	Benefits and challenges, file sizes, block sizes and block abstraction in HDFS,	L2						
27	Data replication, how does HDFS store, read, and write files, Java interfaces to HDFS, command line interface,	L2						
28	Hadoop file system interfaces, data flow, data ingest with Flume and Scoop,	L2						
29	Hadoop archives, Hadoop I/O: compression, serialization, Avro and file-based data structures.	L2						
30	Tutorial-5	L2						
31	Hadoop Environment: Setting up a Hadoop cluster, cluster specification, cluster setup and installation	L2						
32	Hadoop configuration, security in Hadoop, administering Hadoop	L3						
33	HDFS monitoring & maintenance, Hadoop benchmarks, Hadoop in the cloud	L2						
34	Tutorial-6							

35	III	Hadoop ecosystem components, schedulers, fair and capacity, Hadoop 2.0 New Features - NameNode high availability,	L2					
36		HDFS federation, MRv2, YARN, Running MRv1 in YARN.	L2					
37		Tutorial-7						
38		NoSQL Databases: Introduction to NoSQL	L2					
39		Introduction, data types, creating, updating and deleting documents, querying, introduction to indexing, capped collections	L3					
40		Installing spark, spark applications, jobs, stages and tasks,	L3					
41		Resilient Distributed Databases, anatomy of a Spark job run, Spark on YARN	L2					
42		Introduction, classes and objects, basic types and operators,	L2					
43		built-in control, structures, functions and closures, inheritance.	L2					
44		Tutorial-8						
45		Hadoop Eco System Frameworks	L3					
46		Applications on Big Data using Pig, Hive and HBase	L3					
47		Introduction to PIG, Execution Modes of Pig,						

	Comparison of Pig with Databases					
48	Grunt, Pig Latin, User Defined Functions, Data Processing operators,	L3	C04			
49	Apache Hive architecture and installation, Hive shell, Hive services, Hive meta store, comparison with traditional databases,					
50	HiveQL, tables, querying data and user defined functions, sorting and aggregating, Map Reduce scripts, joins & subqueries	L3				
51	Tutorial-9					
52	Hbase concepts, clients, example, Hbase vs RDBMS,					
53	Advanced usage, schema design, advance indexing, Zookeeper - how it helps in monitoring a cluster, how to build applications with Zookeeper.	L2				
54	IBM Big Data strategy, introduction to Infosphere,	L2				
55	,Big Insights and Big Sheets, introduction to Big SQL.	L2				
56	Tutorial-10					

Class Test	Syllabus
CT-01	Lecture 1 to 24
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. Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, “Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses”, Wiley

T2. Thomas Erl, Wajid Khattak, Paul Buhler, “Big Data Fundamentals: Concepts, Drivers and Techniques”, Prentice Hall.

Faculty Sign

HOD's Sign

LESSON PLAN

Semester: VI	Section: E	Course Code: KNC-601	Contact Hours /week: 1
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Course name: Constitution of India, Law and Engineering		# of credits: NON
Teacher's name: Miss Manisha Singh		Designation: AP
Sessional Marks:25	End Semester Examination Marks:100	University Exam Hours: 2

Prerequisites if any:
NA

Content delivery methods:	By Face-to-face delivery, Presentation, Tutorial etc.
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COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	Introduction and Basic Information about Indian Constitution: Meaning of the constitution law and constitutionalism, Historical Background of the Constituent Assembly, Government of India Act of 1935 and Indian Independence Act of 1947, Enforcement of the Constitution, Indian Constitution and its Salient Features, The Preamble of the Constitution, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy, Parliamentary System, Federal System, Centre-State Relations, Amendment of the Constitutional Powers and Procedure, The historical perspectives of the constitutional amendments in India, Emergency Provisions: National Emergency, President Rule, Financial Emergency, and Local Self Government – Constitutional Scheme in India.	6	CO1
2	Union Executive and State Executive:	4	CO2

	<p>Powers of Indian Parliament Functions of Rajya Sabha, Functions of Lok Sabha, Powers and Functions of the President, Comparison of powers of Indian President with the United States, Powers and Functions of the Prime Minister, Judiciary – The Independence of the Supreme Court, Appointment of Judges, Judicial Review, Public Interest Litigation, Judicial Activism, LokPal, Lok Ayukta, The Lokpal and Lok ayuktas Act 2013, State Executives – Powers and Functions of the Governor, Powers and Functions of the Chief Minister, Functions of State Cabinet, Functions of State Legislature, Functions of High Court and Subordinate Courts.</p>		
3	<p>Introduction and Basic Information about Legal System: The Legal System: Sources of Law and the Court Structure: Enacted law -Acts of Parliament are of primary legislation, Common Law or Case law, Principles taken from decisions of judges constitute binding legal rules. The Court System in India and Foreign Courtiers (District Court, District Consumer Forum, Tribunals, High Courts, Supreme Court). Arbitration: As an alternative to resolving disputes in the normal courts, parties who are in dispute can agree that this will instead be referred to arbitration. Contract law, Tort, Law at workplace.</p>	4	C03
4	<p>Intellectual Property Laws and Regulation to Information: Intellectual Property Laws: Introduction, Legal Aspects of Patents, Filing of Patent Applications, Rights from Patents, Infringement of Patents, Copyright and its Ownership, Infringement of Copyright, Civil Remedies for Infringement, Regulation to Information-Introduction, Right to Information Act, 2005, Information Technology Act, 2000, Electronic Governance, Secure Electronic Records and Digital Signatures, Digital Signature Certificates, Cyber Regulations Appellate Tribunal, Offences, Limitations of the Information Technology Act.</p>	4	C04
5	<p>Business Organizations and E-Governance: Sole Traders, Partnerships: Companies: The Company’s Act: Introduction, Formation of a Company, Memorandum of Association, Articles of Association, Prospectus, Shares, Directors, General Meetings and Proceedings,</p>	4	C05

	Auditor, Winding up. E-Governance and role of engineers in E-Governance, Need for reformed engineering serving at the Union and State level, Role of I.T. professionals in Judiciary, Problem of Alienation and Secessionism in few states creating hurdles in Industrial development.		
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COURSE OUTCOMES: At the end of the Course, the Student will be able to:

C01	Identify and explore the basic features and modalities about Indian constitution.
C02	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.
C03	Differentiate different aspects of Indian Legal System and its related bodies.
C04	Discover and apply different laws and regulations related to engineering practices.
C05	Correlate role of engineers with different organizations and governance models

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01												
C02												
C03												
C04												
C05												
Average												

	PS01	PS02	PS03
C01			
C02			
C03			
C04			
C05			
Average			

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

Gap in the syllabus	
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Topics to be covered beyond syllabus	
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LESSON PLAN

Lecture #	Module #	Topics	*RBT Levels	Course Outcome Mapping	Planned Date	Actual Date	No. Of Students	Faculty Sign	Remarks
1	I	Meaning of the constitution law and constitutionalism, Historical Background of the Constituent Assembly , Government of India Act of 1935 and Indian Independence Act of 1947, Enforcement of the Constitution, Indian Constitution and its Salient Features							
2		The Preamble of the Constitution, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy, Parliamentary System, Federal System, Centre-State Relations, Amendment of the Constitutional Powers and Procedure, The historical perspectives of the constitutional amendments in India.							
3		Emergency Provisions: National Emergency , President Rule, Financial Emergency and Local Self Government –Constitutional Scheme in India.							

4	II	Powers of Indian Parliament Functions of Rajya Sabha, Functions of Lok Sabha, Powers and Functions of the President, Comparison of powers of Indian President with the United States, Powers and Functions of the Prime Minister							
5		Judiciary – The Independence of the Supreme Court, Appointment of Judges, Judicial Review, Public Interest Litigation, Judicial Activism, LokPal, Lok Ayukta, The Lokpal and Lok ayuktas Act 2013							
6		State Executives – Powers and Functions of the Governor, Powers and Functions of the Chief Minister, Functions of State Cabinet, Functions of State Legislature, Functions of High Court and Subordinate Courts.							
7	III	Sources of Law and the Court Structure: Enacted law -Acts of Parliament are of primary legislation, Common Law or Case law, Principles taken from decisions of judges constitute binding legal rules.							
8		The Court System in India and Foreign Courtiers (District Court, District Consumer Forum, Tribunals, High Courts, Supreme Court).							
9		Arbitration: As an alternative to resolving disputes in the normal courts, parties who are in dispute can agree that this will instead be referred to arbitration.							
10	IV	Introduction , Legal Aspects of Patents, Filing of Patent Applications.							
11		Rights from Patents, Infringement of Patents, Copyright and its Ownership, Infringement of Copyright, Civil Remedies for Infringement.							
12		Regulation to Information-Introduction Applications Right to Information Act, 2005, Information Technology Act, 2000, Electronic Governance, Secure Electronic records and Digital Signatures certificates, Cyber Regulations Appellate Tribunal, Offences, Limitations of the IT Act.							
13	V	Companies: The Company’s Act: Introduction, Formation of a Company, Memorandum of Association, Articles of Association, Prospectus, Shares, Directors, General Meetings and Proceedings, Auditor, Winding up							

14	E-Governance and role of engineers in E-Governance, Need for reformed engineering serving at the Union and State level, Role of I.T. professionals in Judiciary, Problem of Alienation and Secessionism in few states creating hurdles in Industrial development.								
15	REVISION								

Class Test	Syllabus
CT-01	Class 1-Class 9
CT-02	Class 9-Class 16
PRE- DDU	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)

- Brij Kishore Sharma: *Introduction to the Indian Constitution*, 8th Edition, PHI Learning Pvt. Ltd.
- Granville Austin: *The Indian Constitution: Cornerstone of a Nation (Classic Reissue)*, Oxford University Press.
- S.G Subramanian: *Indian Constitution and Indian Polity*, 2nd Edition, Pearson Education 2020.
- Subhash C. Kashyap: *Our Constitution: An Introduction to India's Constitution and constitutional Law*, NBT, 2018.
 - Madhav Khosla: *The Indian Constitution*, Oxford University Press.
 - PM Bakshi: *The Constitution of India*, Latest Edition, Universal Law Publishing.
 - V.K. Ahuja: *Law Relating to Intellectual Property Rights (2007)*
- Suresh T. Viswanathan: *The Indian Cyber Laws*, Bharat Law House, New Delhi - 88
 - P. Narayan: *Intellectual Property Law*, Eastern Law House, New Delhi sections)

Reference Books:(As per University / Board syllabus)

- **Dr. J.N Pandey: *Constitutional Law of India; Central Law Agency, IABN 81-940757-2-1***
- **M. Laxmikanth: *Indian Polity; McGraw Hill Education, ISBN-13: 25-906412-8, 10-1-25906412-3***

Faculty Sign

Program Head

LESSON PLAN DETAILS

Semester: VI	Section: CS	Course Code: BOE 061	Contact Hours /week: 4
Course name: Idea to Business Model			# of credits: 3
Teacher's name: Mr. Nirankar Srivastava			Designation: Asst. Professor
Sessional Marks: 30		End Semester Examination Marks: 70	University Exam Hours: 3

Prerequisites if any:

Content delivery methods:	By Face to face delivery, Presentation, Tutorial etc.
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COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	Introduction: Search for a business idea, How to choose an idea, Product idea, Selection of product, The adoption process, Product innovation, Production, Planning and development strategy, New product idea.	12	C01
2	Introduction to Entrepreneurship: Meaning and concept of entrepreneurship, Difference between Entrepreneurship & wage employment, Functions of an Entrepreneur, Entrepreneur vs Manager, role of entrepreneurship in economic development, Barriers to entrepreneurship.	10	C02
3	The Entrepreneur: Types of entrepreneurs, Competencies required to become an entrepreneur, Creative and Design Thinking, The entrepreneurial decision process, The process of Entrepreneurial development prog (EDP), Evaluation of EDP, Entrepreneur development training	11	C03
4	Production system: Design of production system, Types of production system, Production, planning & control (PPC), Steps of PPC	11	C04
5	Communication: Importance of communication system, Barriers to communication, Listening to people, The power of talk, Personal selling, Risk taking & resilience, Negotiation	09	C05

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

C01	Compare the selection of a business idea and its implementation process.
C02	Interpret knowledge on entrepreneurship development.
C03	Illustrate how to become an Entrepreneur.
C04	Classify Production systems and its sustainability through production, planning and control (PPC).
C05	Interpret appropriate business model and apply in a better way.

Mapping of CO v/s PO:

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012
C01	-	-	-	1	1	1	2	2	2	2	2	2
C02	-	-	-	1	1	2	1	1	1	1	2	2
C03	-	-	-	1	1	1	2	1	1	1	2	2
C04	-	-	--	1	-	1	2	1	1	1	2	2
C05	-	-	-	1	1	2	2	1	1	2	2	2
Average	-	-	-	1	1	1.4	1.8	1.2	1.2	1.4	2	2

	PS01	PS02	PS03
C01	1	1	-
C02	1	1	-
C03	1	1	-
C04	1	1	-
C05	1	1	-
Average	1	1	-

Correlation levels: 1-Slight (Low)

2-Moderate (Medium)

3-Substantial (High)

Gap in the syllabus	NA
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Topics to be covered beyond syllabus	NA
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LESSON PLAN

Lecture	Module	Scheduled			Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students
1		Search for a business idea	L2	C01				

2	I	How to choose an idea	L2	C01				
3		Product idea	L2	C01				
4		Selection of product	L2	C01				
5		Selection of product (Contd.)	L2	C01				
6		The adoption process	L2	C01				
7		Tutorial 1	L2	C01				
8		The adoption process (Contd.)	L2	C01				
9		Product innovation	L2	C01				
10		Production	L2	C01				
11		Planning and development strategy	L2	C01				
12		Planning and development strategy (Contd.)	L2	C01				
13		New product idea	L2	C01				
13		Revision Class 1	L2	C01				
14		Tutorial 2	L2	C01				
15		Introduction to Entrepreneurship	L2	C02				

16	II	Meaning and concept of entrepreneurship	L2	C02				
17		Meaning and concept of entrepreneurship (Contd.)	L2	C02				
18		Difference between Entrepreneurship & Wage employment	L2	C02				
19		Functions of an Entrepreneur	L2	C02				
20		Tutorial 3	L2	C02				
21		Functions of an Entrepreneur (Contd.)	L2	C02				
22		Entrepreneur vs Manager	L2	C02				
23		Role of entrepreneurship in economic development	L2	C02				
24		Role of entrepreneurship in economic development (Contd.)	L2	C02				
25		Barriers to entrepreneurship	L2	C02				
26		Revision Class 2	L2	C02				
27		Tutorial 4	L2	C02				
28		III	Types of entrepreneurs	L2	C03			
29	Types of entrepreneurs (Contd.)		L2	C03				

30		Competencies required to become an entrepreneur	L2	C03					
31		Creative and Design Thinking	L2	C03					
32		Creative and Design Thinking (Contd.)	L2	C03					
33		Tutorial 5	L2	C03					
34		The entrepreneurial decision process	L2	C03					
35		The process of Entrepreneurial development prog (EDP)	L2	C03					
36		The process of Entrepreneurial development prog (EDP) (Contd.)	L2	C03					
37		Evaluation of EDP	L2	C03					
38		Entrepreneur development training	L2	C03					
39		Revision Class 3	L2	C03					
40		Tutorial 6	L2	C03					
41	IV	Design of production system	L2	C04					
42		Design of production system (Contd.)	L2	C04					
43		Types of production system	L2	C04					
44		Types of production system (Contd.)	L2	C04					

45		Tutorial 7	L2	C04					
46		Production	L2	C04					
47		Planning & control (PPC)	L2	C04					
48		Planning & control (PPC) (Contd.)	L2	C04					
49		Steps of PPC	L2	C04					
50		Revision Class 4	L2	C04					
51		Tutorial 8	L2	C04					
52	V	Importance of communication system	L2	C05					
53		Barriers to communication	L2	C05					
54		Barriers to communication (Contd.)	L2	C05					
55		Listening to people Control	L2	C05					
56		Tutorial 9	L2	C05					
57		The power of talk	L2	C05					
58		Personal selling	L2	C05					
59		Risk taking & resilience	L2	C05					

60	Negotiation	L2	C05					
61	Revision Class 5	L2	C05					
62	Tutorial 10	L2	C05					
63	Revision Class 6	L2	C05					
64	Revision Class 7	L2	C05					
65	Revision Class 8	L2	C05					
66	Revision Class 9	L2	C05					
67	Revision Class 10	L2	C05					

Class Test	Syllabus
CT-01	Class 1-Class 32
CT-02	Class 33-Class 61
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. Entrepreneurship Development- Sangeeta Sharma, Kindle edition.

T2. Production & Operations Management- Kanishka Bedi.

T3. The Business Model Book: Design, build and adapt business ideas that drive business growth:

Adam Bock, Gerard George

Faculty Sign

HOD's Sign