DEPARTMENT OF COMPUTER SCIENCE & ALLIED

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)

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TIME TABLE

BUDDHA INSTITUTE OF TECHNOLOGY, GIDA, GORAKHPUR

Department of Computer Science & Allied

CLASS TIME TABLE (2025-26 EVEN SEMESTER)

Program: INFORMATION TECHNOLOGY (IT)	w.e.f.: 02 FEBRUARY 2026	SEMESTER: 6-B	ROOM NO: 127 (Block-3)

Day / Time	9:10-10:05 AM	10:05-11:00 AM	SHORT BREAK (15 Min.)	11:15-12:10 PM	12:10-01:05PM	LUNCH BREAK (45 Min.)	01:45-2:40 PM	2:40-3:35 PM	3:35-4:30 PM
MON	Techedge-JK-L-307			BD (SKH)	CN (RKR)		SE (SUP)	DA (BK)	PPC-English (Mr. SKT)
TUES	PPC-English (Mr. SKT)	DA (BK)		Techedge-JK-L-307			IBM (NS)	CN (RKR)	SE (SUP)
WED	BD (SKH)	CN (RKR)		CN Lab-B1-RKR-L-301			PPC-Math (Mr. DP)	SE (SUP)	DA (BK)
				DA Lab-B2-BK-L-302					
THU	SE (SUP)	CN (RKR)		BD (SKH)	DA (BK)		BD (SKH)	IBM (NS)	PPC-Math (Mr. DP)
FRI	SE (SUP)	COI (Ms. MS)		DA Lab-B1-BK-L-310			IBM (NS)	CN (RKR)	DA (BK)
				SE Lab-B2-SUP-L-311					
SAT	BD (SKH)	IBM (NS)		SE Lab-B1-SUP-L-310					
				CN Lab-B2-RKR-L-311					

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

BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ALLIED
PROGRAM: INFORMATION TECHNOLOGY
(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

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: Halestead'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:

CO1	Summarize the various software characteristics and different software development models.
CO2	Demonstrate the contents of a SRS, designing strategies and basic software quality assurance practices.
CO3	Utilize various software metrics in software design.
CO4	Illustrate various testing strategy for software systems.
CO5	Classify several maintenance strategies and management tools in software system.

Mapping of CO v/s PO:

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

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

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

Gap in the syllabus	Software quality factors

Topics to be covered beyond syllabus	Tools used in creating software

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**	**CO1**					
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**							
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	**L2**						

		Models							
13		**Tools used in creating software**	**L2**						
14		**Tutorial-2**							
15		Requirement Engineering Process: Elicitation Analysis	**L2**						
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	II	SRS Document	**L2**						
25		IEEE Standards for SRS	**L2**						
26		Software Quality Assurance (SQA): Verification and Validation	**L2**	**CO2**					
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**	**CO3**					
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)	**L3**						

		Based Measures, Cyclomatic Complexity Measures: Control Flow Graphs							
45		**Revision-3**	**L3**						
46		**Tutorial-6**							
47	IV	Software Testing: Testing Objectives, Unit Testing, Integration Testing, Acceptance Testing, Regression Testing	**L2**	**CO4**					
48		Testing for Functionality and Testing for Performance							
49		Top Down and Bottom-Up Testing Strategies: Test Drivers and Test Stub	**L2**						
50		**Revision-4**							
51		**Tutorial-7**							
52		Structural Testing (White Box Testing), Functional Testing (Black Box Testing)	**L2**						
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	**L2**						

		with Design and Coding Standards.							
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 Configuration Management Activities, Change Control Process,	**L2**	**CO5**					
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: B	Course Code: BIT 601	Contact Hours /week**: 4**
Course name: **Data Analytics**			Credits: 3
Teacher's name: **Mr. Birbal Kumar**			Designation: Assistant Professor
Sessional Marks: 30	End Semester Examination Marks: 70		University Exam Hours: 3

Prerequisites if any:			
Course Code	**Course Name**	**Topic/s**	**Semester**
BIT 601	**Data Analytics**	Data Analysis	6

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	**Introduction to Data Analytics:** Sources and nature of data, classification of data (structured, semi-structured, unstructured), characteristics of data, introduction to Big Data platform, need of data analytics, evolution of analytic scalability, analytic process and tools, analysis vs reporting, modern data analytic tools, applications of data analytics. Data Analytics Lifecycle: Need, key roles for successful analytic projects, various phases of data analytics lifecycle – discovery, data preparation, model planning, model building, communicating results, operationalization.	**10**	**CO1**
2	**Data Analysis:** Regression modeling, multivariate analysis, Bayesian modeling, inference and Bayesian networks, support vector and kernel methods, analysis of time series: linear systems analysis & nonlinear dynamics, rule induction, neural networks: learning and generalisation, competitive learning, principal component analysis and neural networks, fuzzy logic: extracting fuzzy models from data, fuzzy decision trees, stochastic search methods.	**12**	**CO2**
3	**Mining Data Streams:** Introduction to streams concepts, stream data model and architecture, stream computing, sampling data in a stream, filtering streams, counting distinct elements in a stream, estimating moments, counting oneness in a window, decaying window, Real-time Analytics Platform (RTAP) applications, Case studies – real time sentiment analysis, stock market predictions.	**11**	**CO3**
4	**Frequent Itemsets and Clustering:** Mining frequent itemsets, market based modelling, Apriori algorithm, handling large data sets in main memory, limited pass algorithm, counting frequent itemsets in a stream, clustering techniques: hierarchical, K-means, clustering high dimensional data, CLIQUE and ProCLUS, frequent pattern based clustering methods, clustering in noneuclidean space, clustering for streams and parallelism.	**11**	**CO4**
5	**Frame Works and Visualization:** MapReduce, Hadoop, Pig, Hive, HBase, MapR, Sharding, NoSQL Databases, S3, Hadoop Distributed File Systems, Visualization: visual data analysis techniques, interaction techniques, systems and applications. Introduction to R - R graphical user interfaces, data import and export, attribute and data types, descriptive statistics, exploratory data analysis, visualization before analysis, analytics for unstructured data	**11**	**CO5**

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

CO1	Discuss various concepts of data analytics pipeline
CO2	Apply classification and regression techniques
CO3	Explain and apply mining techniques on streaming data
CO4	Compare different clustering and frequent pattern mining algorithms
CO5	Describe the concept of R programming and implement analytics on Big data using R.

Mapping of CO v/s PO:

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	2	1	1	-	1	2	1	-	1	-	1	1
CO2	2	1	2	-	1	2	1	-	2	-	1	1
CO3	2	1	2	2	1	2	1	-	2	-	1	1
CO4	2	1	1	1	1	2	1	-	1	-	1	1
CO5	2	1	1	-	1	2	1	-	1	-	1	1
Average	2	1	1.4	1.5	1	2	1	-	1.4	-	1	1

	PSO1	**PSO2**	**PSO3**
CO1	1	1	1
CO2	1	1	1
CO3	2	1	1

CO4	1	1	1
CO5	1	1	1
Average	1.2	1	1

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

Gap in the syllabus	

Topics to be covered beyond syllabus	

LESSON PLAN

Lecture #	**Module #**	**Scheduled**				**Conducted**			
		Topics	***RBT Levels**	**CO Mapping**	**Date**	**Topic**	**Date**	**No. Of Students**	**Faculty Sign**
1	**1**	Introduction to Data Analytics: Sources and nature of data, classification of data (structured, semi-structured, unstructured)	**L2**	**CO1**					
2		Characteristics of data, introduction to Big Data platform	**L2**						
3		Need of data analytics, evolution of analytic scalability	**L2**						
4		Analytic process and tools, analysis vs reporting,	**L2**						
5		Modern data analytic tools, applications of data analytics.	**L2**						
6		**Tutorial-1**							
7		Data Analytics Lifecycle: Need, key roles for successful analytic projects,	**L2**						

8		various phases of data analytics lifecycle – discovery, data preparation, model planning, model building	**L2**						
9 10		Communicating results, operationalization.	**L2**						
11		**Tutorial-2**							
12		Data Analysis: Regression modeling	**L2**						
13		Multivariate analysis, Bayesian modeling	**L3**						
14		Inference and Bayesian networks	**L2**						
15		Support vector and kernel methods	**L2**						
16		Analysis of time series: linear systems analysis & nonlinear dynamics, rule induction	**L3**						
17		**Tutorial-3**							
18	**2**	Neural networks: learning and generalisation,	**L2**	**CO2**					
19		Competitive learning	**L2**						
20		Principal component analysis and neural networks,	**L3**						
21		Fuzzy logic: extracting fuzzy models from data	**L2**						
22		Fuzzy decision trees, stochastic search methods.	**L3**						
23		**Tutorial-4**							
24		**Revision-1**							
25		Mining Data Streams: Introduction To Streams Concepts,	**L3**						
26	**3**	Stream Data Model And Architecture	**L3**	**CO3**					
27		Stream Computing, Sampling Data In A Stream	**L3**						

28		Filtering Streams, Counting Distinct Elements In A Stream	**L3**						
29		**Tutorial-5**							
30		Estimating Moments	**L3**						
31		Counting Oneness In A Window, Decaying Window	**L3**						
32		Real-Time Analytics Platform (RTAP) Applications,	**L3**						
33		Case Studies – Real Time Sentiment Analysis, Stock Market Predictions.	**L3**						
34		Design Structure Charts Pseudo Codes	**L3**						
35		**Tutorial-6**							
36	**4**	Frequent Itemsets And Clustering: Mining Frequent Itemsets	**L2**	**CO4**					
37		Market Based Modelling, Apriori Algorithm, Handling Large Data Sets In Main Memory	**L2**						
38		Limited Pass Algorithm, Counting Frequent Itemsets In A Stream,	**L2**						
39		Clustering Techniques: Hierarchical, K-Means,	**L2**						
40		**Tutorial-7**							
41		Clustering High Dimensional Data	**L3**						
42		CLIQUE And Proclus	**L3**						
43		Frequent Pattern Based Clustering Methods,	**L3**						
44		Clustering In Noneuclidean Space, Clustering For Streams And Parallelism.	**L2**						
45		**Tutorial-8**							

46		**Revision-2**							
47	**5**	Frame Works And Visualization: Mapreduce,	**L3**	**CO5**					
48		Hadoop, Pig, Hive	**L5**						
49		Hbase, Mapr, Sharding	**L5**						
50		Nosql Databases	**L3**						
51		S3, Hadoop Distributed File Systems	**L3**						
52		Visualization: Visual Data Analysis Techniques, Interaction Techniques, Systems And Applications.	**L6**						
53		**Tutorial-9**.							
54		Introduction to R - R graphical user interfaces	**L3**						
55		Data Import And Export, Attribute And Data Types, Descriptive Statistics	**L5**						
56		Exploratory Data Analysis, Visualization Before Analysis, Analytics For Unstructured Data	**L6**						
57		**Tutorial-10**							
58		**Revision-3**							
59		**Revision-4**							
60		**Revision-5**							

Class Test	**Syllabus**
CT-01	Class 1-Class 29
PRE-AKTU	Full Syllabus

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

***Text books and References:**

1. Michael Berthold, David J. Hand, Intelligent Data Analysis, Springer
2. Anand Rajaraman and Jeffrey David Ullman, Mining of Massive Datasets, Cambridge University Press.
3. Bill Franks, Taming the Big Data Tidal wave: Finding Opportunities in Huge Data Streams with Advanced Analytics, John Wiley & Sons.
4. John Garrett, Data Analytics for IT Networks : Developing Innovative Use Cases, Pearson Education
5. Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, "Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley
6. David Dietrich, Barry Heller, Beibei Yang, “Data Science and Big Data Analytics”, EMC Education Series, John Wiley
7. Frank J Ohlhorst, “Big Data Analytics: Turning Big Data into Big Money”, Wiley and SAS Business Series
8. Colleen Mccue, “Data Mining and Predictive Analysis: Intelligence Gathering and Crime Analysis”, Elsevier

Faculty Sign **Program Head**

LESSON PLAN DETAILS

Semester: VI	Section: B	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.

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**	**CO1**
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**	**CO2**
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**	**CO3**
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**	**CO4**
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**	**CO5**

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

CO1	Recognize basic concepts of Computer Networks, OSI reference model and physical Layer Connectivity.
CO2	Apply channel allocation, framing, error and flow control techniques.

CO3	Apply the functions of Network Layer i.e. Logical addressing, sub-netting & Routing Mechanism.
CO4	Explain the different Transport Layer function (Port addressing, Connection Management, etc.)and Session Layer function (Create , Manage & Terminate Session)
CO5	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
CO1	2	2	-	-	-	-	-	-	-	-	-	2
CO2	2	2	2	3	-	-	-	-	-	-	-	2
CO3	2	3	2	3	-	-	-	-	-	-	-	2
CO4	2	2	-	-	-	-	-	-	-	-	-	2
CO5	2	2	-	3	-	-	-	-	-	-	-	2
Average	2	2	2	3	-	-	-	-	-	-	-	2

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3
CO1	2	2	2
CO2	2	2	2
CO3	2	2	2
CO4	2	2	2
CO5	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.

Topics to be covered beyond syllabus	Basic Network tools and concepts.

LESSON PLAN

Lecture	Module	Scheduled				Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
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	CO1					
5		Network structure and architecture (layering principles, services, protocols and standards)	L2	CO1					
6		The OSI reference model, TCP/IP protocol suite, Network devices and components	L3	CO1					
7		**Tutorial 1**		CO1					
8		The OSI reference model, TCP/IP protocol suite, Network devices and components	L3	CO1					
9		Network topology design, Types of connections	L2	CO1					
10		Network topology design, Types of connections	L2	CO1					
11		Transmission media	L2	CO1					
12		Signal transmission and encoding	L2	CO1					
13	II	Network performance and transmission impairments	L3	CO2					
14		**Tutorial 2**		CO2					
15		Switching techniques and multiplexing	L2	CO2					
16		Framing	L2	CO2					

17		Error Detection	L2	CO2					
18		Error Detection	L2	CO2					
19		Flow control (Elementary Data Link Protocol)	L2	CO2					
20		**Tutorial 3**		CO2					
21		Medium Access Control and Local Area Networks , Channel allocation	L2	CO2					
22		Medium Access Control and Local Area Networks , Channel allocation	L2	CO2					
23		Multiple access protocols	L2	CO2					
24		LAN standards, Link layer switches & bridges	L3	CO2					
25		Spanning tree algorithms	L2	CO3					
26		**Tutorial 4**		CO3					
27	III	Point-to-point networks , Logical addressing	L2	CO3					
28		Basic internetworking	L2	CO3					
29		IP, CIDR, ARP	L2	CO3					
30		RARP, DHCP, ICMP	L3	CO3					

31		RARP, DHCP, ICMP	L3	CO3					
32		**Tutorial 5**		CO3					
33		**Revision Class 1**		CO3					
34		Routing, forwarding and delivery	L3	CO3					
35		Static and dynamic routing	L2	CO3					
36		Routing algorithms and protocols	L2	CO3					
37		Congestion control algorithms, IPv6	L2	CO4					
38		**Tutorial 6**		CO4					
39	IV	Process-to-process delivery	L2	CO4					
40		Transport layer protocols (UDP and TCP)	L2	CO4					
41		**Revision Class 2**		CO4					
42		Multiplexing	L2	CO4					
43		Connection management	L2	CO4					
44		**Tutorial 7**		CO4					

45		Flow control and retransmission	L2	CO4					
46		**Revision Class 3**		CO4					
47		Window management	L2	CO4					
48		**Revision Class 4**		CO4					
49		Quality of service	L2	CO4					
50		**Tutorial 8**		CO4					
51	V	**Revision Class 5**		CO5					
52		Domain Name System	L2	CO5					
53		World Wide Web and Hyper Text Transfer Protocol	L2	CO5					
54		Electronic mail	L2	CO5					
55		File Transfer Protocol	L2	CO5					
56		**Revision Class 6**		CO5					
57		**Tutorial 9**		CO5					
58		Remote login	L2	CO5					
59		Data compression	L3	CO5					
60		Network management	L2	CO5					
61		Cryptography – basic concepts	L3	CO5					

62		**Tutorial 10**		CO5					
63		**Revision Class 7**		CO5					

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 **Program Head**

LESSON PLAN DETAILS

Semester: VI	Section: B	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

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**

4	**Hadoop Eco System and YARN:** Hadoop ecosystem components, schedulers, fair and capacity, Hadoop 2.0 New Features - NameNode high availability, HDFS federation, MRv2, YARN, Running MRv1 in YARN. NoSQL Databases: Introduction to NoSQL **MongoDB:** Introduction, data types, creating, updating, and deleing documents, querying, introduction to indexing, capped collections **Spark:** Installing spark, spark applications, jobs, stages and tasks, Resilient Distributed Databases, anatomy of a Spark job run, Spark on YARN **SCALA:** Introduction, classes and objects, basic types and operators, built-in control structures, functions and closures, inheritance.	**09**	**CO4**
5	**Hadoop Eco System Frameworks:** Applications on Big Data using Pig, Hive and HBase **Pig –** Introduction to PIG, Execution Modes of Pig, Comparison of Pig with Databases, Grunt, Pig Latin, User Defined Functions, Data Processing operators. **Hive -** Apache Hive architecture and installation, Hive shell, Hive services, Hive metastore, comparison with traditional databases, HiveQL, tables, querying data and user defined functions, sorting and aggregating, Map Reduce scripts, joins & subqueries. **HBase –** Hbase concepts, clients, example, Hbase vs RDBMS, advanced usage, schema design, advance indexing, Zookeeper – how it helps in monitoring a cluster, how to build applications with Zookeeper. IBM Big Data strategy, introduction to Infosphere, BigInsights and Big Sheets, introduction to Big SQL.	**09**	**CO5**

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

CO1	Demonstrate knowledge of Big Data Analytics concepts and its applications in business.
CO2	Demonstrate functions and components of Map Reduce Framework and HDFS.
CO3	Discuss Data Management concepts in NoSQL environment.
CO4	Explain process of developing Map Reduce based distributed processing applications.
CO5	Explain process of developing applications using HBASE, Hive, Pig etc.

Mapping of CO v/s PO:

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	2	3	2	1	2	-	-	-	-	-	-

CO2	3	3	2	3	2	1	-	-	-	-	-	-
CO3	2	3	3	3	2	-	-	-	-	-	-	-
CO4	3	3	3	2	3	2	1	-	-	-	-	-
CO5	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				

	PSO1	**PSO2**	**PSO3**
CO1	3	2	3
CO2	3	3	2
CO3	2	3	3
CO4	3	3	2
CO5	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

Topics to be covered beyond syllabus	Case Study on Big Data Analytics

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**						
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**	**CO1**					

9		Big Data Analytics	**L2**						
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	II	Introduction to Hadoop	**L2**	**CO2**					
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		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 deleing documents, querying, introduction to indexing, capped collections	**L3**						
40		Installing spark, spark applications, jobs, stages and tasks,	**L3**						
41	III	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**						
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**		CO4					
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 **Program Head**

LESSON PLAN

Semester: **VI**	Section: **B**	Course Code: **KNC-601**	Contact Hours /week**: 1**

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.

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

	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.		
3	**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.	4	CO3
4	**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.	4	CO4
5	**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,	4	CO5

	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.		

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

CO1	Identify and explore the basic features and modalities about Indian constitution.
CO2	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.
CO3	Differentiate different aspects of Indian Legal System and its related bodies.
CO4	Discover and apply different laws and regulations related to engineering practices.
CO5	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
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	

Topics to be covered beyond syllabus	

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: **IT**	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.

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**	**CO1**
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**	**CO2**
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**	**CO3**
4	**Production system:** Design of production system, Types of production system, Production, planning & control (PPC), Steps of PPC	**11**	**CO4**
5	**Communication:** Importance of communication system, Barriers to communication, Listening to people, The power of talk, Personal selling, Risk taking & resilience, Negotiation	**09**	**CO5**

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

CO1	Compare the selection of a business idea and its implementation process.
CO2	Interpret knowledge on entrepreneurship development.
CO3	Illustrate how to become an Entrepreneur.
CO4	Classify Production systems and its sustainability through production, planning and control (PPC).
CO5	Interpret appropriate business model and apply in a better way.

Mapping of CO v/s PO:

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	1	1	1	2	2	2	2	2	2
CO2	-	-	-	1	1	2	1	1	1	1	2	2
CO3	-	-	-	1	1	1	2	1	1	1	2	2
CO4	-	-	--	1	-	1	2	1	1	1	2	2
CO5	-	-	-	1	1	2	2	1	1	2	2	2
Average	-	-	-	1	1	1.4	1.8	1.2	1.2	1.4	2	2

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

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		Search for a business idea	L2	CO1					

2	I	How to choose an idea	L2	CO1					
3		Product idea	L2	CO1					
4		Selection of product	L2	CO1					
5		Selection of product (Contd.)	L2	CO1					
6		The adoption process	L2	CO1					
7		**Tutorial 1**	L2	CO1					
8		The adoption process (Contd.)	L2	CO1					
9		Product innovation	L2	CO1					
10		Production	L2	CO1					
11		Planning and development strategy	L2	CO1					
12		Planning and development strategy (Contd.)	L2	CO1					
13		New product idea	L2	CO1					
13		**Revision Class 1**	L2	CO1					
14		**Tutorial 2**	L2	CO1					
15		Introduction to Entrepreneurship	L2	CO2					

16	II	Meaning and concept of entrepreneurship	L2	CO2					
17		Meaning and concept of entrepreneurship (Contd.)	L2	CO2					
18		Difference between Entrepreneurship & Wage employment	L2	CO2					
19		Functions of an Entrepreneur	L2	CO2					
20		**Tutorial 3**	L2	CO2					
21		Functions of an Entrepreneur (Contd.)	L2	CO2					
22		Entrepreneur vs Manager	L2	CO2					
23		Role of entrepreneurship in economic development	L2	CO2					
24		Role of entrepreneurship in economic development (Contd.)	L2	CO2					
25		Barriers to entrepreneurship	L2	CO2					
26		**Revision Class 2**	L2	CO2					
27		**Tutorial 4**	L2	CO2					
28	III	Types of entrepreneurs	L2	CO3					
29		Types of entrepreneurs (Contd.)	L2	CO3					

30		Competencies required to become an entrepreneur	L2	CO3					
31		Creative and Design Thinking	L2	CO3					
32		Creative and Design Thinking (Contd.)	L2	CO3					
33		**Tutorial 5**	L2	CO3					
34		The entrepreneurial decision process	L2	CO3					
35		The process of Entrepreneurial development prog (EDP)	L2	CO3					
36		The process of Entrepreneurial development prog (EDP) (Contd.)	L2	CO3					
37		Evaluation of EDP	L2	CO3					
38		Entrepreneur development training	L2	CO3					
39		**Revision Class 3**	L2	CO3					
40		**Tutorial 6**	L2	CO3					
41	IV	Design of production system	L2	CO4					
42		Design of production system (Contd.)	L2	CO4					
43		Types of production system	L2	CO4					
44		Types of production system (Contd.)	L2	CO4					

45		**Tutorial 7**	L2	CO4					
46		Production	L2	CO4					
47		Planning & control (PPC)	L2	CO4					
48		Planning & control (PPC) (Contd.)	L2	CO4					
49		Steps of PPC	L2	CO4					
50		**Revision Class 4**	L2	CO4					
51		**Tutorial 8**	L2	CO4					
52	V	Importance of communication system	L2	CO5					
53		Barriers to communication	L2	CO5					
54		Barriers to communication (Contd.)	L2	CO5					
55		Listening to people Control	L2	CO5					
56		**Tutorial 9**	L2	CO5					
57		The power of talk	L2	CO5					
58		Personal selling	L2	CO5					
59		Risk taking & resilience	L2	CO5					

60		Negotiation	L2	CO5					
61		**Revision Class 5**	L2	CO5					
62		**Tutorial 10**	L2	CO5					
63		**Revision Class 6**	L2	CO5					
64		**Revision Class 7**	L2	CO5					
65		**Revision Class 8**	L2	CO5					
66		**Revision Class 9**	L2	CO5					
67		**Revision Class 10**	L2	CO5					

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 **Program Head**