DEPARTMENT OF CSE

ACADEMIC YEAR: 2020-21 SEMESTER : IV- I

FACULTY NAME: Dr. E Laxmi Lydia DESIGNATION : Professor

COURSE NAME: BIG DATA ANALYTICS COURSE CODE: 1005174103

LESSON PLAN

Lec. No.		Topic	Methodology	ICT Resources
1		**Course overview: COs, unit-wise outcomes**		
2	1.1	**Working with Big data:** Introduction, Google File System	ICT – Video Content	R1: Lec 1,2,3
3	1.2	Hadoop distributed File System	ICT - PPT	R2: Lec 4
4	1.3	Building blocks of Hadoop (Namenode, Datanode, Secondary Namenode, JobTracker, TaskTracker)	ICT - PPT	R3:Lec 5
5	1.4	Introduction of Hadoop Cluster	ICT - PPT	
6	1.5	Configuring Hadoop Cluster(Local, Pseudo-distributed mode, Fully distributed mode)	ICT - PPT	
7	1.6	Configuring Hadoop Cluster(Local, Pseudo-distributed mode, Fully distributed mode)	ICT - PPT	
8	1.7	Configuring Xml files	ICT - PPT	
9	2.1	**Writing MapReduce Programs:** A weather dataset	ICT - PPT	
10	2.2	Understanding Hadoop API for MapReduce Framework (old and new)	ICT - PPT	
11	2.3	MapReduce Flow Chart	ICT - PPT	R4: Lec 6
12	2.4	Basic programs of Hadoop MapReduce	ICT - PPT	
13	2.5	Drivercode	ICT - PPT	
14	2.6	Mappercode,	ICT - PPT	
15	2.7	Reducercode, RecordReader	ICT - PPT	
16	2.8	Combiner	ICT - PPT	
17	2.9	Partitioner	ICT - PPT	
18	3.1	**Hadoop I/O:** The Writable Interface	Chalk & Board	
19	3.2	WritableComparable and comparators	Chalk & Board	

Lec. No.		Topic	Methodology	ICT Resources
20	3.3	Writable classes	Chalk & Board	
21	3.4	Writable wrappers for Java primitives, Text	Chalk & Board	
22	3.5	BytesWritable, NullWritable	Chalk & Board	
23	3.6	ObjectWritable and GenericWritable	ICT - PPT	
24	3.7	Writable collections	Chalk & Board	
25	3.8	Implementing a custom Writable	ICT - PPT	
26	3.9	Implementing a RawComparator for speed	ICT - PPT	
27	3.10	Custom comparators	ICT - PPT	
28	4.1	**Pig:** Hadoop Programming made easier	Chalk & Board	
29	4.2	Admiring the pig Architecture	Chalk & Board	
30	4.3	Going with the Pig Latin Application Flow	Chalk & Board	
31	4.4	Working through the ABCs of Pig Latin	Chalk & Board	
32	4.5	Evaluating Local and Distributed Modes of Running Pig Scripts	ICT - PPT	R5: Video Content
33	4.6	Checking out the Pig Script Interfaces	ICT - PPT	
34	4.7	Scripting with Pig Latin	ICT - PPT	
35	5.1	**Applying Structure to Hadoop Data with Hive: Introduction**	Chalk & Board	
36	5.2	Saying Hello to Hive	ICT - PPT	
37	5.3	Seeing How the Hive is put together	ICT - PPT	
38	5.4	Getting started with Apache Hive	Chalk & Board	
39	5.5	Tutorial	Chalk & Board	
40	5.6	Examining the Hive Clients	Chalk & Board	
41	5.7	Working with Hive Data Types	Seminar	
42	5.8	Creating and Managing Databases and Tables	FSCR	
43	5.9	Seeing How the Hive Data Manipulation Language Works	ICT - PPT	
44	5.10	Querying and Analysing Data	Chalk & Board	

Digital References:

R1	**NPTEL :** Big Data Computing, by Dr. Rajiv Misra **IIT Patna**	https://onlinecourses-archive.nptel.ac.in/noc19_cs33/unit?unit=7&lesson=15

R2	**NPTEL :** Big Data Computing, by Dr. Rajiv Misra **IIT Patna**	https://onlinecourses-archive.nptel.ac.in/noc19_cs33/unit?unit=8&lesson=19
R3	**NPTEL :** Big Data Computing, by Dr. Rajiv Misra **IIT Patna**	https://onlinecourses-archive.nptel.ac.in/noc19_cs33/unit?unit=8&lesson=20
R4	**NPTEL :** Big Data Computing, by Dr. Rajiv Misra **IIT Patna**	https://onlinecourses-archive.nptel.ac.in/noc19_cs33/unit?unit=8&lesson=21
R5	Video Content: Big Data, by Dr. E Laxmi Lydia, Professor and Dean R&D, VIIT (A)	https://www.youtube.com/watch?v=lNyC5Ce14V8

Text Books:

1. Big Java 4th Edition, Cay Horstmann, Wiley John Wiley & Sons, INC
2. Hadoop: The Definitive Guide by Tom White, 3rd Edition, O'reilly
3. Hadoop in Action by Chuck Lam, MANNING Publ.
4. Hadoop for Dummies by Dirk deRoos, Paul C.Zikopoulos, Roman B.Melnyk,Bruce Brown, Rafael Coss

Reference Books:

1. Hadoop in Practice by Alex Holmes, MANNING Publ.
2. Hadoop MapReduce Cookbook, SrinathPerera, ThilinaGunarathne

FACULTY

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DEPARTMENT OF MECHAICAL ENGINEERING

ACADEMIC YEAR: 2020-21 SEMESTERS : IV-II

FACULTY NAME: Mr .G Santosh Kumar DESIGNATION : Asst.Professor

COURSE NAME: Design For Manufacture COURSE CODE: 1003174207

LESSON PLAN

S.No.	Lecture No.	Topic	Methodology	ICT Resources
1	1.1	Introduction To DFM	Chalk & Board	
2	1.2	Design Philosophy-Steps in Design Process	Chalk & Board	
3	1.3	General Design Rules for Manufacturability	ICT(PPT)	R1: Lecture-1
4	1.4	Basic Principles of Designing for Economical Production	Chalk & Board	
5	1.5	Creativity In Design	ICT(PPT)	
6	1.6	Design For the Life Cycle Total Product Life of Consumer Goods	Chalk & Board	
7	1.7	Design Considerations.	ICT(PPT)	R2: Lecture 29
9	2.1	Overview Of Various Machining Processes	Seminar	
10	2.2	General Design Rules for Machining	ICT(PPT)	
11	2.3	General Design Rules for Machining	ICT(PPT)	
12	2.4	Dimensional Tolerance and Surface Roughness	Chalk & Board	
13	2.5	Design For Machining	Chalk & Board	
14	2.6	Ease – Redesigning of Components	ICT(PPT)	

15	2.7	General Design Recommendations for Machined Parts	ICT(PPT)	
16	2.8	Introduction To Metal Casting	Chalk & Board	
17	3.1	Appraisal Of Various Casting Processes	ICT(PPT)	
18	3.2	Selection Of Casting Process	Chalk & Board	
19	3.3	General Design Considerations for Casting	ICT(PPT)	
20	3.4	Casting Tolerance-Use of Solidification	Chalk & Board	
21	3.5	Simulation In Casting Design	ICT(PPT)	
22	3.6	Product Design Rules for Sand Casting	ICT(PPT)	
23	3.7	Design Guide Lines Extruded Sections	ICT(PPT)	
24	3.8	Design Principles for Punching, Blanking, Bending, Deep Drawing	Chalk & Board	
25	3.9	Keeler Goodman Forging Line Diagram	ICT(PPT)	
26	3.10	Component Design for Blanking	ICT(PPT)	
27	4.1	Appraisal Of Various Welding Processes	Chalk & Board	
28	4.2	Factors In Design of Weldments General Design Guidelines	Case Study	R4: Page-1.2
29	4.3	Pre And Post Treatment of Welds	Chalk & Board	
30	4.4	Effects Of Thermal Stresses in Weld Joints	Chalk & Board	
31	4.5	Design Of Brazed Joints	ICT(PPT)	
32	4.6	Design Factors for Forging	ICT(PPT)	
33	4.7	Parting Lines of Dies	Chalk & Board	

34	4.8	General Design Recommendations	Chalk & Board	
35	5.1	Plastics: Visco Elastic and Creep Behaviour in Plastics	ICT(PPT)	
36	5.2	Visco Elastic and Creep Behaviour in Plastics	ICT(PPT)	
37	5.3	Design Guidelines for Plastic Components	ICT(PPT)	R4: Lecture-22, R1: Unit-7
38	5.4	Design Guidelines for Plastic Components	ICT(PPT)	
39	5.5		ICT(PPT)	R3: Lecture-19
40	5.6	Design Considerations for Injection Moulding	ICT(PPT)	R3: Lecture-19
41	5.7	Design Guidelines for Machining and Joining of Plastics	ICT(PPT)	
42	5.8	Design Guidelines for Machining and Joining of Plastics	ICT(PPT)	

Digital References

R1	NPTEL: Manufacturing Guidelines for Product Design, IIT Roorkee	https://www.youtube.com/watch?v=udM9CrT38AM Unit:7 https://www.youtube.com/watch?v=mwoMKs7fC_g
R2	NPTEL-NOC IITM :Design for Quality, Manufacturing and Assembly	https://www.youtube.com/watch?v=onj5wOKPU_I
R3	NPTEL: Design Guidelines for Extrusion and Injection Molding, IIT Roorkee	https://www.youtube.com/watch?v=I4PptmWppUE
R4	EBOOK: Design of Weldments	https://mmsallaboutmetallurgy.com/wp-content/uploads/2018/11/Design-of-Weldments.pdf

Text/Reference Books:

1.Design for manufacture, John cobert, Adisson Wesley.1995

2. Design for Manufacture by Boothroyd,

3. "DFM DFA Guideline: Design for Manufacturability & Design for Assembly" by VukotaBoljanovic

References

1. "Design for Manufacturability Handbook" by James G. Bralla
2. "Design for Manufacturing and Assembly: Concepts, Architectures, and Implementation" by Geoffrey Boothroyd, Peter Dewhurst, and Winston Knight

FACULTY

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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR: **2020-21** SEMESTER : **IV Year- Sem-1 (VR 17)**

FACULTY NAME: **Dr. V. S. V. SATYANARAYANA** DESIGNATION : **Associate Professor**

COURSE NAME : **ADDITIVE MANUFACTURING** COURSE CODE : 100374115

LESSON PLAN

S.No.	Lecture No.	Topic	Methodology	ICT Resource
1	1.1	Introduction to Additive Manufacturing course	Chalk and Board	R1: L1
2	1.2	Fundamentals of Prototyping, Classification	Chalk and Board	R2: Page 19-20, R4: L1
3	1.3	Advantages and limitations of rapid prototyping	ICT Tool-PPT	R2: Pg 14-16
4	1.4	Stereolithography Apparatus (SLA): Working principle, process, models and specifications.	Animated Video, ICT Tool-PPT	R1: L9; R-2: Pg. 39-41
5	1.5	Photo polymerization, Layering technology, Laser and laser scanning	ICT Tool-PPT	R1: L10; Unit-1-L5
6	1.6	SLA applications, advantages and disadvantages, Case study	ICT Tool-PPT	R2: Pg. 42; R4:Unit1- L4
7	1.7	Solid Ground Curing (SGC): Process, working principle, models and specifications,	ICT Tool-PPT	R1: L14; R4:Unit 1- L7
8	1.8	SGC applications, advantages and disadvantages, Case study	Chalk and Board	R2; Pg. 56-57; R4:Unit1- L8
9	2.1	Laminated object manufacturing (LOM) - process, working principle	Animated Video, ICT Tool-PPT	R1: L15 & L16; R4:Unit 2: L 1
10	2.2	LOM- models and Specifications, advantages and disadvantages and applications	ICT Tool-PPT	R2: Pg. 113; R4:Unit 2: L 2

11	2.3	LOM – Case study	ICT Tool-PPT	R2: Pg.122-123
12	2.4	Fused Deposition Modelling (FDM) - process, working principle	**Flipped Learning**	R1: L18; R4:Unit 2: L 4 (Video Lectures)
13	2.5	FDM- models and Specifications, advantages and disadvantages and applications	ICT Tool-PPT	R2: Pg.124-126; R4:Unit 2: L 5
14	2.6	FDM – Case study	ICT Tool-PPT	R2: 132-133
15	2.7	Fused Deposition Modelling 3D printers	Animated Video, ICT Tool-PPT	R2: 135-136
17	3.1	Selective Laser Sintering (SLS): working principle, process, models and Specifications	Animated Video, ICT Tool-PPT	R1: L26 & L27; R4:Unit 3: L 1
18	3.2	SLS - applications, advantages and disadvantages, Case study	ICT Tool-PPT	R2: 174-176; R4:Unit 3: L 2
19	3.3	Three Dimensional Printing (3DP): working principle, process, models and Specifications	Animated Video, ICT Tool-PPT	R2:209; R4:Unit 3: L 3
20	3.4	3DP - applications, advantages and disadvantages, Case study	ICT Tool-PPT	R2:210-212; R4:Unit 3: L 4
21	3.5	Conventional tooling Vs RT, Need for RT, rapid tooling classification, Indirect rapid tooling methods: spray metal deposition	Chalk and Board	R2: Pg: 317; R4:Unit 3: L 4
22	3.6	RTV epoxy tools, Ceramic tools, Investment casting, spin casting, die casting, sand casting, 3D Keltool process	ICT Tool-PPT	R2:317-319; R4:Unit 3: L 5
23	3.7	Direct rapid tooling: direct AIM, LOM Tools, DTM Rapid Tool Process	ICT Tool-PPT	R2:314-315; R4:Unit 4: L 5
24	3.8	EOS Direct Tool Process and Direct Metal Tooling using 3DP	ICT Tool-PPT	R2:315-317

25	3.9	Revision on Liquid based and Solid based RP techniques.	**Open Book Examination**	R1: R4: Unit1 to Unit 3
26	4.1	Rapid prototyping data formats, STL Format, STL File Problems	Chalk and Board	R2:Pg.239; R4:Unit 4: L 1
27	4.2	Consequence of building valid and invalid tessellated models	ICT Tool-PPT	R2:Pg.243; R4:Unit 4: L 2
28	4.3	STL file Repairs: Generic Solution, Other Translators, and Newly Proposed Formats.	ICT Tool-PPT	R1: L3; R4:Unit 4: L 2
29	4.4	Rapid prototyping software's – Introduction, Features of RP software: Magics, Mimics	ICT Tool-PPT	R4: Unit 4: L4; R4:Unit 4: L 5
30	4.5	Solid View; View Expert, 3 D View, Velocity2	ICT Tool-PPT	R4: Unit 4: L5; R4:Unit 4: L 5
31	4.6	Rhino, STL View 3 Data Expert, 3 D doctor	ICT Tool-PPT	R4: Unit 4: L6
32	5.1	RP application in engineering, analysis and planning	Chalk and Board	R4: Unit 5: L1
33	5.2	RP application in Aerospace industry, automotive Industry.	Chalk and Board	R4: Unit 5: L2
34	5.3	RP application in Jewelry industry, coin industry, GIS application, arts and architecture	Chalk and Board	R4: Unit 5: L3
35	5.4	Planning and simulation of complex surgery; Customized implants ; Prosthesis	ICT Tool-PPT	R4: Unit 5: L4
36	5.5	Design and production of medical devices, Forensic science and anthropology; Visualization of bimolecular	ICT Tool-PPT	R4: Unit 5: L5

R1	NPTEL: Fundamentals of Additive Manufacturing Technologies	https://archive.nptel.ac.in/courses/112/103/112103306/
R2	Prototyping: Principles and Applications/ Chua C.K. Leong K.F. and LIM C.S/ World Scientific publications.	https://books.google.co.in/books/about/Rapid_Prototyping_Principles_And_Applica.html?id=mGRIDQAAQBAJ&redir_esc=y
R3	Rapid Manufacturing: / D. T. Pham and S. S. Dimov / Springer	https://link.springer.com/book/10.1007/978-1-4471-0703-3
R4	Video Lecture developed by the Internal Faculty member	http://bit.ly/am_me

Text Books

1. Rapid Prototyping: Principles and Applications/ Chua C.K. Leong K.F. and LIM C.S/ World Scientific publications.
2. Rapid Prototyping and Manufacturing / Paul F Jacob/ ASME press

Reference books

1. Additive Manufacturing Technologies: 3D Printing, Rapid Prototyping, and Direct Digital Manufacturing
2. Additive Manufacturing: Dr K.Shivananda Devi, R. Nilan

FACULTY

HEAD OF THE DEPARTMENT

LESSON PLAN

DEPARTMENT OF ECE

ACADEMIC YEAR : **2020-2021** SEMESTER: **IV-II B.Tech**

FACULTY NAME : **Dr A.NagaJyothi** DESIGNATION: Professor

COURSE NAME: **Radar Systems** COURSE CODE: 1004174203

S.No.	Lecture No	Topics to be covered	Teaching methodology	ICT Resources
		UNIT-I		
1	1.1	**Basics of Radar:** Introduction to Course, Explanation of prerequisites such as electromagnetic waves, transmitters and receiver in communication systems	Lecture using PPT	
2	1.2	Radar working principle, maximum unambiguous range, PRF and PRT	ICT(PPT)	
3	1.3	Simple radar range equation and illustrative problems	Lecture using PPT	**R1:Week1-Lecture 03**
4	1.4	Radar block diagram and radar frequency bands and applications	ICT(PPT)	**R1:Week1-Lecture 04**
5	1.5	Prediction of Range Performance, Minimum Detectable Signal	ICT(PPT)	
6	1.6	Modified Radar Range Equation, Receiver Noise, SNR	Lecture using Chalk and Board	
7	1.7	Integration of Radar Pulses and Transmitter Power	Flipped Class room	
8	1.8	Radar Cross Section of Targets (simple targets - sphere, cone-sphere),	Lecture using PPT	
9	1.9	PRF and Range Ambiguities, System Losses (qualitative treatment), Illustrative Problems	**Seminar**	
10	1.10	Creeping Wave and Revision of Unit-1	**OBE**	
11	1.11	Illustrative problems on Unit-I	Lecture using PPT	**R1:Week-2 Lecture 08**
		UNIT-II		
12	2.1	**CW and Frequency Modulated Radar:** Doppler Effect	Lecture using PPT	**R1:Week-2 Lecture 10**
13	2.2	CW Radar – Block Diagram		**R1:Week-3 Lecture 11**
14	2.3	Isolation between Transmitter and Receiver, Non-zero IF Receiver	ICT(PPT)	

15	2.4	Receiver Bandwidth Requirements, Applications of CW radar	Lecture using Chalk and Board)	
16	2.5	FM-CW Radar: Range and Doppler Measurement	ICT(PPT)	**R1:Week-3 Lecture 12**
17	2.6	FM-CW Radar, Block Diagram and Characteristics	Lecture using PPT	
18	2.7	FM-CW altimeter	Lecture using Chalk and Board)	
19	2.8	Multiple Frequency CW Radar	ICT(PPT)	
20	2.9	Illustrative Problems on doppler frequency and FM-CW Radar	Lecture using Chalk and Board)	
21	2.10	Revision of Unit-II and problem solving	Lecture using PPT	
		UNIT-III		
22	3.1	**MTI and Pulse Doppler Radar:** Introduction, Principle of MTI and pulse doppler radar	Lecture using chalk and board	**R1:Week-3 Lecture 15**
23	3.2	MTI Radar with - Power Amplifier Transmitter and Power Oscillator Transmitter	ICT(PPT)	
24	3.3	Delay Line Cancellers – Filter Characteristics, Blind Speeds	Lecture using Chalk and Board	
25	3.4	Illustrative Problems on blind speeds	Lecture using chalk and board	
26	3.5	Double Cancellation, Nth Cancellation	ICT(PPT)	
27	3.6	Staggered PRFs	Lecture using chalk and board	
28	3.7	Range Gated Doppler Filters.	Lecture using chalk and board	
29	3.8	MTI Radar Parameters	Lecture using Chalk and Board	
30	3.9	Limitations to MTI Performance, MTI versus Pulse Doppler Radar	Lecture using Chalk and Board	**R1:Week-4 Lecture 20**
31	3.10	Problem Solving in Unit-III	Lecture using Chalk and Board	
		UNIT-IV		
32	4.1	**Tracking Radar:** Introduction to Tracking with Radar and types of tracking radar	Think Pair share	**R1:Week5-Lecture 25**

33	4.2	Tracking methods: Sequential Lobing, Conical Scan	Lecture using Chalk and Board)	**R2:Traking Radar**
34	4.3	Mono pulse Tracking Radar – Amplitude Comparison Mono pulse in one-coordinates	Lecture using Chalk and Board)	
35	4.4	Mono pulse Tracking Radar – Amplitude Comparison Mono pulse in two-coordinates	ICT(PPT)	
36	4.5	Phase Comparison Mono pulse radar	ICT(PPT)	
37	4.6	Tracking in Range, Acquisition and Scanning Patterns, Comparison of Trackers	ICT(PPT)	
39	4.7	Frequency agility and Radomes	Lecture using chalk and board	
		UNIT-V		
40	5.1	**Detection of Radar Signals in Noise:** Introduction, Matched Filter Receiver	Lecture using chalk and board	**R1:Week7-Lecture 33**
41	5.2	Matched Filter Response Characteristics and Derivation, Correlation detection and Cross-correlation Receiver	Lecture using Chalk and Board)	
42	5.3	Efficiency of Non-matched Filters, Matched Filter with Non-white Noise	Lecture using chalk and board	
43	5.4	Noise Figure and Noise Temperature in cascaded systems	Lecture using chalk and board	
44	5.5	Radar Receivers –Displays – types, Duplexers – Branch type Duplexers	**ICT Enabled Tool (E-Content)**	**R3:Duplexers**
45	5.6	Balanced type, Circulators as Duplexers	Lecture using chalk and board	

Digital References:

R1	NPTEL : Principles and Techniques of Modern Radar Systems, IIT Kharagpur, Dr. Amitabha Bhattacharya	https://nptel.ac.in/courses/108105154

R2	www.tutorialspoint.com	https://www.tutorialspoint.com/radar_systems/radar_systems_tracking_radar.htm
R3	www.tutorialspoint.com	https://www.tutorialspoint.com/radar_systems/radar_systems_duplexers.htm

Text/Reference Books

1. "Introduction to Radar Systems" – Merrill I. Skolnik, TMH Special Indian Edition, 2nd Ed., 2007.
2. "Principles of Modern Radar": Basic Principles – Mark A. Richards, James A. Scheer, William A. Holm, Yesdee
3. "Introduction to Radar Systems", 3rd edition – M.I. Skolnik, TMH Ed., 2005
4. "Radar: Principles", Technology, Applications – Byron Edde, Pearson Education, 2004.
5. "Radar Principles" – Peebles, Jr., P.Z., Wiley, New York, 1998.
6. "Radar Engineering" – GSN Raju, IK International.

Digital References

1. https://nptel.ac.in/courses/108105154
2. https://www.tutorialspoint.com/radar_systems
3. https://ftp.idu.ac.id/wp-content/uploads/ebook/tdg/ADNVANCED%20MILITARY%20PLATFORM%20DESIGN/Radar%20Handbook.pdf
4. https://drive.google.com/file/d/1-pHq8NZ69xaBLVGIpDRMND2JjUs6Hry5/view?usp=share_link

FACULTY

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