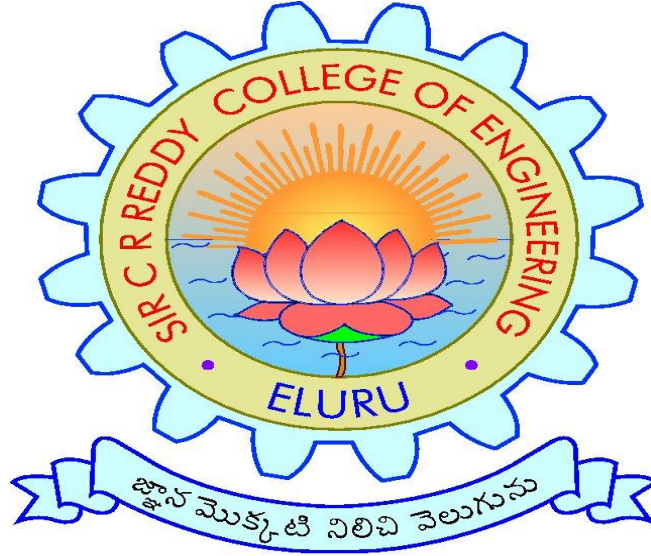


SIR C.R.REDDY COLLEGE OF ENGINEERING, ELURU
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE HANDOUT



SUBJECT: CLOUD COMPUTING
CLASS: IV/IV B.Tech., I SEMESTER, A.Y.2022-23
INSTRUCTOR: E B K MANASH

Course Handout Index

S.No	Description
1	College Vision & Mission
2	Department Vision & Mission
3	Program Educational Objectives (PEOs)
4	Program Outcomes (POs)
5	Program Specific Outcomes (PSOs)
6	JNTUK Academic Calendar
7	Department Academic Calendar
8	Course Description
9	Course Objectives
10	Course Outcomes
11	Lesson Plan
12	Evaluation Pattern
13	Timetable
14	Unit wise Questions

COLLEGE VISION

To emerge as a premier institution in the field of technical education and research in the state and as a home for holistic development of the students and contribute to the advancement of society and the region.

COLLEGE MISSION

To provide high quality technical education through a creative balance of academic and industry oriented learning; to create an inspiring environment of scholarship and research; to instill high levels of academic and professional discipline; and to establish standards that inculcate ethical and moral values that contribute to growth in career and development of society in general.

VISION OF THE DEPARTMENT

To be a premier Department in the region in the field of Information Technology through academic excellence and research that enable graduates to meet the challenges of industry and society

MISSION OF THE DEPARTMENT

- ❖ To Provide dynamic teaching-learning environment to make the students industry ready and advancement in career;
- ❖ To inculcate professional and leadership quality for better employability and entrepreneurship;
- ❖ To make high quality professional with moral and ethical values suitable for industry and society

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Solve real world problems through effective professional skills in Information Technology industry and academic research.

PEO2: Analyze and develop applications in Information Technology domain and adapt to changing technology trends with continuous learning.

PEO3: Practice the profession in society with ethical and moral values.

PROGRAM OUTCOMES (POs)

PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using the first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/Development of Solutions: Design solutions for complex engineering problems and system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, society, and environmental considerations.

PO4: Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and Sustainability: Understand the impact of the professional engineering solutions in society and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multi-disciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the

engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments.

PO12: Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Design and develop software in the area of relevance under realistic constraints.

PSO2: Adapt new and fast emerging technologies in the field of Information Technology.

Website: www.jntuk.edu.in
Email: dap@jntuk.edu.in



Phone: 0884-2300991

Directorate of Academic Planning
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA-533003, Andhra Pradesh, INDIA
(Established by AP Government Act No. 30 of 2008)

Lr. No. DAP/AC/IV Year /B. Tech/B. Pharmacy/2022


Date 25.06.2022

Dr. KVSG Murali Krishna,
M.E., Ph.D.,
Director, Academic Planning
JNTUK, Kakinada

To
All the Principals of Affiliated Colleges,
JNTUK, Kakinada.

Academic Calendar for IV Year - B. Tech/B. Pharmacy for the AY 2022-23

I SEMESTER			
Description	From	To	Weeks
Commencement of Class Work	04.07.2022		
I Unit of Instruction	04.07.2022	27.08.2022	8W
I Mid Examinations	29.08.2022	03.09.2022	1W
II Unit of Instructions	05.09.2022	29.10.2022	8W
II Mid Examinations	31.10.2022	05.11.2022	1W
Preparation & Practicals	07.11.2022	12.11.2022	1W
End Examinations	14.11.2022	26.11.2022	2W
Commencement of II Semester Class Work	05.12.2022		
II SEMESTER			
I Unit of Instructions	05.12.2022	28.01.2023	8W
I Mid Examinations	30.01.2023	04.01.2023	1W
II Unit of Instructions	06.01.2023	01.04.2023	8W
II Mid Examinations	03.04.2023	08.04.2023	1W
Preparation & Practicals	10.04.2023	15.04.2023	1W
End Examinations	17.04.2023	29.04.2023	2W


Director, *25/6/22*
Academics & Planning,
Director
Academic Planning
JNTUK Kakinada

Copy to the Secretary to the Hon'ble Vice Chancellor, JNTUK
Copy to Rector, Registrar, JNTUK
Copy to Director Academic Audit, JNTUK
Copy to Director of Evaluation, JNTUK

Department Academic Calendar

		Department of Information Technology IV/IV B.Tech Academic Calendar for 2022-23																																	
2022-23	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M					
Jul 22					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Aug 22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Sep 22				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Oct 22					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Nov 22		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
Dec 22				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Jan 23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Feb 23			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28					
Mar 23			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Apr 23					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
May 23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Jun 23				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		

List of Holidays	Oct 9: Maulud Nabi	Mar 22 : Ugadhi	Mid exams
July 10: Bakrid	Oct 24 : Diwali	Mar 30: Srirama navami	End Examinations
Aug 9: Moharum	Dec 25 : Christmas	Apr 5: Babu Jagjivan Ram Jayanti	Commencement of Class work
Aug 15: Independence day	Jan 14-16: sankranti	Apr 7: Good friday	Workshops
Aug 31: Ganesh Chaturdi	Jan 26: Republic Day	Apr 14: Ambetkar Jayanthi	Department fest/Elite
Oct 2: Gandhi jayanthi	Feb 18 : Sivaratri	Jun 29: Bakrid	
Oct 5: Vijayadasami	Mar 8 : holi		

HoD
Department of IT

Course Description

This is a graduate course surveying topics in cloud computing. Cloud Computing is a large-scale distributed computing paradigm which has become a driving force for information technology over the past several years. The exponential growth data size in scientific instrumentation/simulation and social media has triggered the wider use of cloud computing services. We will explore solutions and learn design principles for building large network-based systems to support both compute and data intensive computing across geographically distributed infrastructure.

Course Objectives

The main objectives of this course are given below:

1. Understand fundamental concepts in the area of cloud computing
2. Determine knowledge in applications of cloud computing
3. Develop the broad perceptive of cloud architecture and model
4. Understand the concept of virtualization and design of cloud services.
5. Understand the familiarity of the lead players in the cloud.

Course Outcomes

Students are able to

CO No's	COs	Level
CO1	Understand knowledge of different aspects of Cloud Computing such as: Services, Models, and Challenges.	L2

CO2	Identify the Infrastructure of Cloud Computing and also make use of the different Cloud Computing Applications and Paradigms.	L3
CO3	Analyze the importance of Cloud Resourcing Virtualization and Cloud Resourcing and Scheduling.	L4
CO4	Summarize Cloud based Storage and need of Security in Cloud Computing	L2
CO5	Outline the Development of Cloud-based applications like Google and Microsoft.	L2

S.No	Date	Subject Topics	No Of Classes	Method of Teaching	Course Outcome	Reference/Text Book
1	05-07-2022	O Overview of Syllabus, Course Objectives of CC	1	BB		
2	07-07-2022	CO-PO mapping	1	BB		
I		Introduction & Parallel and Distributed Systems	12			
1	08-07-2022	Network centric computing and Network centric content	1	BB	a,b,c,d	3 to 6 of T1
2	09-07-2022	Peer-to –peer systems	1	BB	a,b,c,d	7 to 8 of T1
3	12-07-2022	Cloud computing delivery models	1	BB	a,b,c,d	11 to 13 of T1

		and services				
4	14-07-2022	Ethical issues in cloud computing	1	BB	a,b,c,d	14 of T1
5	15-07-2022	Cloud Vulnerabilities.	1	BB	a,b,c,d	15 of T1
6	16-07-2022	Major challenges for cloud computing	1	BB	a,b,c,d	16 of T1
7	19-07-2022	Parallel and Distributed Systems: introduction	1	BB	a,b,c,d	21 to 24 of T1
8	21-07-2022	Architecture, distributed systems	1	BB	a,b,c,d	25 to 27 of T1
9	22-07-2022	Communication protocols	1	BB	a,b,c,d	32 to 33 of T1
10	23-07-2022	Logical clocks, Message delivery rules	1	BB	a,b,c,d	34 to 37 of T1
11	26-07-2022	Concurrency	1	BB	a,b,c,d	41 to 43 of T1
12	28-07-2022	Modeling concurrency with Petri Nets	1	BB	a,b,c,d	51 to 56 of T1
II		Cloud Infrastructure & Cloud Computing : Applications and Paradigms	10			
1	29-07-2022	Cloud Infrastructure: At Amazon	1	BB	a,b,c	67 to 76 of T1
2	30-07-2022	The Google Perspective, Microsoft Windows Azure	1	BB	a,b,c	77 to 79 of T1
3	02-08-2022	Open Source Software Platforms for private clouds, Cloud storage diversity	1	BB	a,b,c	80 to 85 of T1

4	04-08-2022	The inter-cloud, Energy use and ecological impact of Large-Scale Data centers	1	BB	a,b,c	86 to 89 of T1
5	05-08-2022	Responsibility sharing between user and Cloud service provider, User experience	1	BB	a,b,c	92 to 94 of T1
6	06-08-2022	Software licensing	1	BB	a,b,c	95 of T1
7	11-08-2022	Cloud Computing : Applications and Paradigms: Challenges for Cloud computing, Existing cloud applications and new opportunities	1	BB	a,b,c	100 to 101 of T1
8	12-08-2022	Architectural Styles for Cloud Applications	1	BB	a,b,c	102 to 103 of T1
9	13-08-2022	Workflows: Coordination of multiple activities	1	BB	a,b,c	104 to 111 of T1
10	16-08-2022	The Zookeeper, High-Performance Computing on a cloud	1	BB	a,b,c	112 to 114 of T1 & 121 to 124 of T1
III		Cloud Resource virtualization & Cloud Resource Management and Scheduling	14			
1	18-08-2022	Cloud Resource virtualization: Virtualization, Layering and virtualization	1	BB	a,b,c,d,f	132 to 135 of T1
2	20-08-2022	Virtual Machine Monitors, Virtual Machines	1	BB	a,b,c,d,f	136 to 138 of T1
3	23-08-2022	Full Virtualization and Para Virtualization, Performance and security isolation	1	BB	a,b,c,d,f	139 to 141 of T1
4	25-08-2022	Hardware support for virtualization	1	BB	a,b,c,d,f	142 to 143 of T1
5	26-08-2022	Case Study: Xen	1	BB	a,b,c,d,f	144 to 148 of T1
6	27-08-2022	Case Study: vBlades	1	BB	a,b,c,d,f	152 to 153 of T1

	29-08-2022 to 03-09-2022	INTERNAL-I				
7	06-09-2022	Cloud Resource Management and Scheduling: Policies and Mechanisms for Resource Management	1	BB	a,b,c,d	164 to 165 of T1
8	08-09-2022	Applications of control theory to task scheduling on a cloud	1	BB	a,b,c,d	166 to 168 of T1
9	09-09-2022	Stability of a two-level resource allocation architecture	1	BB	a,b,c,d	169 to 170 of T1
10	10-09-2022	Feedback control based on dynamic thresholds, Coordination	1	BB	a,b,c,d	171 to 173 of T1
11	13-09-2022	Resource bundling, scheduling algorithms for Computing cloud	1	BB	a,b,c,d	178 to 183 of T1
12	15-09-2022	Fair queuing, Start time fair Queuing, ,	1	BB	a,b,c,d	184 to 189 of T1
13	16-09-2022	Cloud scheduling subject to deadlines	1	BB	a,b,c,d	194 to 198 of T1
14	20-09-2022	Scheduling Map Reduce applications, Resource management and dynamic application scaling.	1	BB	a,b,c,d	199 to 201 of T1
IV		Storage Systems & Cloud Security	10			
1	23-09-2022	Storage Systems: Evolution of storage technology, storage models, File systems and database	1	BB	a,b,c,d	242 to 245 of T1
2	24-09-2022	Distributed file systems	1	BB	a,b,c,d	246 to 251 of T1
3	27-09-2022	General parallel file systems	1	BB	a,b,c,d	252 to 254 of T1
4	29-09-2022	Google file system, Apache Hadoop	1	BB	a,b,c,d	255 to 259 of T1

5	30-09-2022	Big Table, Megastore (text book 1),	1	BB	a,b,c,d	266 to 268of T1
6	01-10-2022	Amazon Simple Storage Service(S3) (Text book 2),	1	BB	a,b,c,d	55 of T2
7	04-10-2022	Cloud Security: Cloud security risks,	1	BB	a,b,c,d	274 to 276 of T1
8	06-10-2022	security – a top concern for cloud users, Privacy and privacy impact assessment	1	BB	a,b,c,d	277 to 280 of T1
9	07-10-2022	Trust, OS security	1	BB	a,b,c,d	281 to 283 of T1
10	08-10-2022	Virtual machine security, Security risks.	1	BB	a,b,c,d	284 to 294 of T1
V		Cloud Application Development, Google & Microsof	10			
1	11-10-2022	Cloud Application Development: Amazon Web Services : EC2 – instances, Connecting clients	1	BB	a,b,c	318 to 323 of T1
2	14-10-2022	Security rules, launching	1	BB	a,b,c	324 to 327 of T1
3	18-10-2022	Usage of S3 in Java	1	BB	a,b,c	328 to 330 of T1
4	20-10-2022	Cloud based simulation of a Distributed trust algorithm	1	BB	a,b,c	339 to 343 of T1
5	21-10-2022	Cloud service for adaptive data streaming (Text Book 1)	1	BB	a,b,c	352 to 355 of T1
6	22-10-2022	Google: Google App Engine, Google Web Toolkit (Text Book 2)	1	BB	a,b,c	41 to 44 of T2
7	25-10-2022	Microsoft: Azure Services Platform	1	BB	a,b,c	48 of T2
8	27-10-2022	Windows live	1	BB	a,b,c	49 to 50 of T2
9	28-10-2022	Exchange Online	1	BB	a,b,c	51 of T2

10	29-10-2022	Share Point Services, Microsoft Dynamics CRM (Text Book 2)	1	BB	a,b,c	52 to 53 of T2
	31-10-2022 to 05-11-2022	INTERNAL-II				
1	08-11-2022	Content Beyond Syllabus: 1)Energy efficiency in clouds 2)Market – based management of clouds	1	BB	a,b,c	244 to 248 of T1
2	10-11-2022	Content Beyond Syllabus: 3) Federated clouds/intercloud 4) Third- party cloud services	1	BB	a,b,c	244 to 248 of T1
3	11-11-2022	Revision				
4	12-11-2022	Revision				

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	-	-	-	-	-	-	-	-		
CO2	3	3	2	-	-	-	-	-	-	-	-	-		3
CO3	3	3	2	2	-	2	-	-	-	-	-	-		
CO4	3	2	3	2	-	-	-	-	-	-	-	-		3
CO5	3	2	3	-	-	-	-	-	-	-	-	-		3
Avg	3	2.6	2.4	2	-	2	-	-	-	-	-	-		3

Evaluation Pattern

S. No	Components	Internal	External	Total
1	Theory	25	75	100
2	Engineering Graphics/Design/Drawing	25	75	100
3	Practical	20	30	50
4	Mini Project/Internship/Industrial Training/ Skill Development programmes/Research Project	-	50	50
5	Project Work – Part I	20	30	50
5	Project Work – Part II	60	90	150

Marks Range Theory (Max – 100)	Marks Range Lab (Max – 75)	Letter Grade	Level	Grade Point
≥ 90	≥ 67	O	Outstanding	10
≥80 to <90	≥60 to <67	S	Excellent	9
≥70 to <80	≥52 to <60	A	Very Good	8
≥60 to <70	≥45 to <52	B	Good	7
≥50 to <60	≥37 to <45	C	Fair	6
≥40 to <50	≥30 to <37	D	Satisfactory	5
<40	<30	F	Fail	0
			Absent	0

Day/Time	09.00- 09.50	09.50- 10.40	11.00- 11.50	11.50- 12.40	01.40- 02.30	02.30- 03.20	03.20- 04.10	04.10- 05.00
Mon	CC(B)			CC(A)				
Tue			CC(B)		CC(A)			
Wed					CC(A)			
Thu		CC(B)					CC(B)	
Fri	CC(A)							
Sat		CC(A)		CC(B)				