COURSE HANDOUT

CLOUD COMPUTING (BCAMJ-404)

BCA-4th SEMESTER

ACADEMIC YEAR (2024-25)

Ms. Deepanshi

Assistant Professor

Department of Computer Science & Engineering

Department of Computer Science & Engineering

Model Institute of Engineering & Technology (Autonomous)

Kot Bhalwal, Jammu - 181122

www.mietjmu.in

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
BCAMJ 404	Cloud Computing	Major	2	0	0	4	40	60	100

COURSE OUTCOMES

At the end of the course the student will be able to:	
CO1	Explain the foundational understanding of cloud commuting and its impact.
CO2	Analyze cloud infrastructure components and their roles in building cloud environments.
CO3	Describe cloud service models and their benefits in various scenarios.
CO4	Evaluate security issues and solutions to enhance cloud security.
CO5	Apply cloud-based tools and services to manage data in specific applications.

Unit-I Introduction to Cloud Computing:

Evolution and History of Cloud Computing, Introduction to Cloud Computing, Features of Cloud Computing, Cloud Computing for various users, Advantages of Cloud Computing and Limitations of Cloud Computing.

(10 Hours)

Unit-II Cloud Infrastructure & Architecture:

Cloud Computing Architecture, Cloud Architecture Components, virtualization Basics, Hypervisors and Virtual Machine, Cloud Storage and Data Management, Network and Security Considerations in Cloud.

(10 Hours)

Unit-III Cloud Service Models:

Defining Infrastructure as a Service (IaaS) - IaaS workloads - Pods, aggregation – Defining Platform as a Service (PaaS) - Defining Software as a Service (SaaS) - SaaS characteristics - Open SaaS and SOA- Salesforce.com and CRM SaaS - Defining Identity as a Service (IDaaS) - Identity - Authorization markup languages   (10 Hours)

Unit- lV Security:

Overview of Security Issues, Infrastructure Security: Network level security, Host level security, Application-level security, Data security and Storage, Challenges and Risks of Cloud Computing Platforms and Cloud Services.

(9 Hours)

Unit-V Cloud Computing Applications:

Cloud-Based Productivity Tools (e.g., Google Workspace, Microsoft Office 365).Cloud-Based Development and Deployment Tools, Big Data and Cloud Computing, Cloud Computing in Business and Education. (9hours)

Textbooks

S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	Cloud Computing: Technology & Architecture	Thomas Erl, Zaigham Mahmood, and Ricardo Puttini	Pearson	1st (2013)
2.	Cloud Computing	Judith Hurwitz, Robin Bloor, Marcia Kaufman, and Dr. Fern Halper	Wiley Publishing	2nd (2020)

Reference Books

S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	Mastering Cloud Computing Foundations	Rajkumar Buyya, Christian Vecchiola, S. Thamarai Selvi	Morgan Kaufmann Publishers	(2013)

COURSE PLAN	
Unit-I Introduction to Cloud Computing	

S.No.	Topics	Recommended Books
1	Evolution and History of Cloud Computing,	Book 1, Ch.1
2	Introduction to Cloud Computing, Features of Cloud Computing	Book 1, Ch.1
3	Cloud Computing for various users,	Reference Book 1, Ch.15
4	Advantages of Cloud Computing	Book 2, Ch.1
5	Limitations of Cloud Computing.	Book 2, Ch.1
Unit-II Cloud Infrastructure & Architecture		
11	Cloud Computing Architecture,	Reference Book1, Ch.10
12	Cloud Architecture Components,	Book 1, Ch.10
13	Virtualization Basics	Book 1, Ch.10
14	Hypervisors and Virtual Machine,	Book 1, Ch.10
15	Cloud Storage and Data Management	Book 1, Ch.10
16	Network and Security Considerations in Cloud.	Book 1, Ch.5
Unit-III Cloud Service Models:		
21	Defining Infrastructure as a Service (IaaS)	Book 1, Ch.3
22	IaaS workloads - Pods	https://www.bacancytechnology.com/blog/netflix-aws-migration https://www.bacancytechnology.com/blog/airbnbs-aws-migration
23	Aggregation – Defining Platform as a Service (PaaS) -	Book 1, Ch.3
24	Defining Software as a Service (SaaS)	Book 1, Ch.3
25	SaaS characteristics - Open SaaS	https://thinklogic.com/post/cloud-migration-case-study-how-capital-one-successfully-transitioned-to-the-cloud
26	SaaS characteristics - Salesforce.com	Book 1, Ch.3
27	SaaS characteristics CRM SaaS -	Book 1, Ch.3
28	Defining Identity as a Service (IDaaS)	Book 1, Ch.5
29	Identity - Authorization markup languages	Book 1, Ch.5

Unit-IV Security		
31	Overview of Security Issues,	Book 1, Ch.11
32	Infrastructure Security:	Book 1, Ch.11
33	Network level security,	Book 1, Ch.11
34	Host level security,	Book 1, Ch.11
35	Application-level security,	Book 1, Ch.11
36	Data security and Storage	https://cybersrcc.com/infrastructure-threat/
37	Challenges and Risks of Cloud Computing Platforms	Book 1, Ch.11
38	Challenges and Risks of Cloud Services.	Book 1, Ch.11
Unit-V Cloud Computing Applications		
40	Cloud-Based Productivity Tools (e.g., Google Workspace, Microsoft Office 365)	Reference Book1, Ch.4
41	Cloud-Based Development and Deployment Tools	Reference Book1, Ch.4
42	Big Data and Cloud Computing,	Reference Book 1, Ch.25
43	Cloud-Native Applications	Book 1, Ch.8
44	Cloud Computing in Business and Education.	https://www.mendix.com/blog/why-cloud-native-applications-are-the-future-of-software/

ADDITIONAL WEB RESOURCES

1.	https://www.youtube.com/watch?v=RWgW-CgdIk0 (Cloud Computing Tutorial for Beginners)
2.	https://www.youtube.com/watch?v=EN4fEbcFZ_E (Cloud Computing Full Course)
3.	**NPTEL** – Cloud Computing Course by Prof. Somya Kanti Ghosh (IIT Kharagpur) https://nptel.ac.in/courses/106105167

GRADING AND ASSESSMENT

Dr. Arun K. Gupta Teaching-Learning Centre —————————————————— Version 1.1

Save Paper
Save Trees
Save the World

श्रेष्ठ श्रम नवीनता

Please Do Not Print Unless Necessary

- **Sessional Test**: 15 marks

- **Assignment**: 10 marks

- **Attendance**: 5 marks

- **Final Examination**: 70 marks

COURSE POLICIES

- **Attendance**: Minimum 75% attendance is mandatory to appear in the final examination of the course.

- **Academic Integrity**: MIET's academic integrity policies apply. Plagiarism will not be tolerated.

- **Late Submissions**: Assignments and projects must be submitted by the specified timelines.

FACULTY INFORMATION

- **Office Hours**

  Monday (12:05 PM - 12:55 PM)
  Friday (12:05 PM - 12:55 PM)

- **Contact Information**
  Deepanshi.cse@mietjammu.in

श्रेष्ठ 🎓   श्रम ⚙️ नवीनता 💡