20ITC33 Cloud Security (Elective V)

3 1 0 3

Course Outcomes

1. To understand core concepts of the cloud computing paradigm
2. To learn about characteristics, advantages and challenges brought by the various models and services in cloud computing.
3. To identify the known threats, risks, vulnerabilities and privacy issues associated with Cloud based services.
4. To understand security challenges, threats and risks involved in the cloud application
5. To anlayze the Security Requirements for the Architecture in cloud services
6. To understand Data Security and best practices involved in securing the cloud.

CO–PO Mapping

CO	PO1	PO2	PO4
1	3	1	1
2	2	2	2
3	2	1	2
4	3	2	2
5	2	3	3
6	3	2	2

3–Strongly linked | 2–Moderately linked | 1–Weakly linked

Unit I 10+4 Hours
Cloud Computing Fundamentals and Architecture- Understanding and Roots of Cloud Computing, Essential Characteristics, Cloud Reference Architecture, Cloud Service Models: SaaS, Paas,IaaS, Cloud Deployment Models, Expected Benefits, Forming Clouds with example.

Unit II 12+4 Hours
Cloud Computing Software Security Fundamentals- Cloud Information Security Objectives, Cloud Security Services, Relevant Cloud Security Design Principles, Secure Cloud Software Requirements, Security Concerns, Risk Tolerance, Legal and Regulatory Issues

Unit III 12+4 Hours
Cloud Computing Risk Issues and Security Challenges: The CIA Triad,Privacy and Compliance Risks,Threats to Infrastructure, Data, and Access Control,Cloud Service Provider Risks Security Challenges- Security Policy Implementation, Virtualization, Virtual Machine, Virtualization of CPU, Memory and I/O devices, Virtualization Security Management, VM Security Recommendations, VM-Specific Security Techniques.

Unit IV 11+3 Hours
Securing the cloud: Architecture and Data Security Security Requirements for the Architecture,Security Patterns and Architectural Elements, Cloud Security Architecture, Planning Key Strategies for Secure Operation. Overview of Data Security in Cloud Computing, Data Encryption: Applications and Limits, Cloud Data Security: Sensitive Data Categorization, Cloud Data Storage, Cloud Lock-in, Key strategies to secure the cloud, Best practices for cloud computing, Security monitoring

Total: 45+15 Hours

Textbook (s)

1. Russell Dean Vines and Ronald L. Krutz ,Cloud Security: A Comprehensive Guide To Secure Cloud Computing, Wiley India Pvt Ltd, 2010
2. Securing The Cloud: Cloud Computing Security Techniques and Tactics by Vic (J.R.) Winkler (Syngress/Elsevier) ,2011

Reference (s)

1. Cloud Computing Design Patterns by Thomas Erl (Prentice Hall)
2. Barrie Sosinsky, Cloud Computing Bible, Wiley India,2011
3. Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Cloud Computing: Principles and Paradigms, Wiley

Internal Assessment Pattern

Cognitive Level	Int. Test 1 (%)	Int. Test 2 (%)	OBE
Remember	50	40	-
Understand	30	40	-
Apply	20	20	50
Analyze	--	--	50
Evaluate	--	--	-
Create	--	--	-
Total (%)	100	100	100

20EC602 Digital Signal Processing (Elective V)

3 1 0 3

Course Outcomes

At the end of the course, students will be able to
1. Classify discrete time signals and systems
2. Implement Digital systems by using realization techniques
3. Implement discrete Fourier transform and Fast Fourier transform on time domain signals
4. Differentiate FIR and IIR digital filters
5. Demonstrate the concept Multirate signal processing
6. Interpret the architecture of Digital signal processors

CO – PO Mapping

COs	PO$_1$	PO$_2$	PSO$_2$
1	2	-	2
2	3	2	3
3	3	2	3
4	3	2	3
5	3	2	3
6	2	-	2

3–Strongly linked | 2–Moderately linked | 1–Weakly linked

Syllabus

Unit I   **12+3 Hours**

Introduction to Discrete–Time signals and systems

Classification of Discrete time signals, linear Time Invariant systems, stability, and causality, Linear convolution in time domain and graphical approach, Frequency Domain Representation of Discrete-Time Signals and systems. Concept of Z-transforms, Region of Convergence, properties, Inverse Z transform, Realization of Digital filter structures: Direct form-I, Direct form-II, Transposed form, Cascaded form, Parallel form.
Lattice structure, Lattice-Ladder structure