# SHRI VENKATESHWARA UNIVERSITY



# Syllabus

## M.TECH (Computer Science and Engineering)

**(Two Years Post Graduation Programme)**

**(w.e.f. 2019-20)**

## SCHOOL OF ENGINEERING & TECHNOLOGY

| Sl. No. | Subject Codes | Subject | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| | | | | | | | | | | | | | |

**SEMESTER-III**

| Sl. No. | Subject Codes | Subject | L | T | P | CT | TA | Total | PS | TE | PE | Total | Credit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MCS-054 | Cloud Computing | 3 | 0 | 0 | 20 | 10 | 30 | | 70 | | 100 | 3 |
| 2 | MOE-335 | Composite Materials | 3 | 0 | 0 | 20 | 10 | 30 | 70 | | | 100 | 3 |
| 3 | MCS-321 | Dissertation Phase – I | 0 | 0 | 20 | | | | 125 | | 125 | 250 | 10 |
| | | Total | | | | | | | | | | 450 | 16 |

| Course Code | MCS-054 |
|---|---|
| Course Name | Cloud Computing |
| Credits | 3 |
| Pre-Requisites | |
| **COURSE OBJECTIVE** | |

- The student will also learn how to apply trust-based security model to real-world security problems.
- An overview of the concepts, processes, and best practices needed to successfully secure information within Cloud infrastructures.
- Students will learn the basic Cloud types and delivery models and develop an understanding of the risk and compliance responsibilities and Challenges for each Cloud type and service delivery model.

| LECTURE WITH BREAKUP | NO. OF LECTURES |
|---|---|
| **Unit 1:**<br>**Introduction to Cloud Computing**<br>Online Social Networks and Applications, Cloud introduction and overview, Different clouds, Risks, Novel applications of cloud computing | 4 |
| **Unit 2:**<br>**Cloud Computing Architecture**<br>Requirements, Introduction Cloud computing architecture, On Demand Computing Virtualization at the infrastructure level, Security in Cloud computing environments, CPU Virtualization, A discussion on Hypervisors Storage Virtualization Cloud Computing Defined, The SPI Framework for Cloud Computing, The Traditional Software Model, The Cloud Services Delivery Model<br>**Cloud Deployment Models**<br>Key Drivers to Adopting the Cloud, The Impact of Cloud Computing on Users, Governance in the Cloud, Barriers to Cloud Computing Adoption in the Enterprise | 11 |
| **Unit 3:**<br>**Security Issues in Cloud Computing**<br>Infrastructure Security, Infrastructure Security: The Network Level, The Host Level, The Application Level, Data Security and Storage, Aspects ofData Security, Data Security Mitigation Provider Data and Its Security **Identity and Access Management**<br>Trust Boundaries and IAM, IAM Challenges, Relevant IAM Standards and Protocols for Cloud Services, IAM Practices in the Cloud, Cloud Authorization Management | 10 |
| **Unit 4:**<br>**Security Management in the Cloud**<br>Security Management Standards, Security Management in the Cloud, | 11 |
| **Availability Management: SaaS, PaaS, IaaS**<br>Privacy Issues<br>Privacy Issues, Data Life Cycle, Key Privacy Concerns in the Cloud, Protecting Privacy, Changes to Privacy Risk Management and Compliance in Relation to Cloud Computing, Legal and Regulatory Implications, U.S. Laws and Regulations, | |

| | |
|---|---|
| International Laws and Regulations | |
| **Unit 5:**<br>Audit and Compliance<br>Internal Policy Compliance, Governance, Risk, and Compliance (GRC), Regulatory/External Compliance, Cloud Security Alliance, Auditing the Cloud for Compliance, Security-as-a-Cloud | 8 |
| **Unit 6:**<br>**ADVANCED TOPICS**<br>**Recent devlopments in hybrid cloud and cloud security .** | 4 |
| **COURSE OUTCOMES** | |
| **After completion of course, students would be able to:** | |
| • Identify security aspects of each cloud model | |
| • Develop a risk-management strategy for moving to the Cloud | |
| • Implement a public cloud instance using a public cloud service provider | |
| • Apply trust-based security model to different layer | |

*References:*

1. Cloud Computing Explained: Implementation Handbook for Enterprises, John Rhoton,Publication Date: November 2, 2009
2. Cloud Security and Privacy: An Enterprise Perspective on Risks and Compliance (Theory in Practice), Tim Mather, ISBN-10: 0596802765,O'Reilly Media, September 2009

**Open Elective MOE-335**
**Composite Materials**

**Teaching scheme**

**Lecture: - 3 h/week**

**UNIT–I**: INTRODUCTION: Definition – Classification and characteristics of Composite materials. Advantages and application of composites. Functional requirements of reinforcement and matrix.

Effect of reinforcement (size, shape, distribution, volume fraction) on overall composite performance.

**UNIT – II**: REINFORCEMENTS: Preparation-layup, curing, properties and applications of glass fibers, carbon fibers, Kevlar fibers and Boron fibers. Properties and applications of whiskers, particle reinforcements. Mechanical Behavior of composites: Rule of mixtures, Inverse rule of mixtures. Isostrain and Isostress conditions.

**UNIT – III:** Manufacturing of Metal Matrix Composites: Casting – Solid State diffusion technique, Cladding – Hot isostatic pressing. Properties and applications. Manufacturing of Ceramic Matrix Composites: Liquid Metal Infiltration – Liquid phase sintering. Manufacturing of Carbon – Carbon composites: Knitting, Braiding, Weaving. Properties and applications.

**UNIT–IV:** Manufacturing of Polymer Matrix Composites: Preparation of Moulding compounds and prepregs – hand layup method – Autoclave method – Filament winding method – Compression

moulding – Reaction injection moulding. Properties and applications.

**UNIT – V:** Strength: Laminar Failure Criteria-strength ratio, maximum stress criteria, maximum strain criteria, interacting failure criteria, hygrothermal failure. Laminate first play failure-insight strength; Laminate strength-ply discount truncated maximum strain criterion; strength design using caplet plots; stress concentrations.

*TEXT BOOKS:*

1. Material Science and Technology – Vol 13 – Composites by R.W.Cahn – VCH, West Germany.
2. Materials Science and Engineering, An introduction. WD Callister, Jr., Adapted by R. Balasubramaniam, John Wiley & Sons, NY, Indian edition, 2007.

*References:*

1. Hand Book of Composite Materials-ed-Lubin.
2. Composite Materials – K.K.Chawla.
3. Composite Materials Science and Applications – Deborah D.L. Chung.
4. Composite Materials Design and Applications – Danial Gay, Suong V. Hoa, and Stephen W.Tasi.