



# NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

## DEPARTMENT OF COMPUTER APPLICATIONS

COURSE PLAN – PART I			
Name of the programme and specialization	Master of Computer Applications		
Course Title	Cloud Computing		
Course Code	CA733	No. of Credits	3
Course Code of Pre-requisite subject(s)	CA726, CA727		
Session	July 2022	Section (if, applicable)	B
Name of Faculty	G.R.Gangadharan	Department	Computer Applications
Official Email	ganga@nitt.edu	Telephone No.	0431-2503737
Name of PAC Chairperson	Dr. Jitendra Kumar		
Official E-mail	jitendra@nitt.edu	Telephone No.	0431-2503734
Course Type (please tick appropriately)	Core course		
<b>Syllabus (approved in BoS)</b>			
<p>Distributed Systems Models and Enabling Technologies: Scalable Computing – Technologies for Network-Based Systems – System Models for Distributed and Cloud Computing – Software Environments for Distributed and Clouds – Performance, Security and Energy Efficiency</p> <p>Virtualization concepts: Implementation Levels of Virtualization – Virtualization Structures -Tools and Mechanisms – Virtualization of CPU, Memory and I/O Devices – Virtual Clusters and Resource Management – Virtualization for Data-Center Automation, Introduction to Various Virtualization OS - VMware, KVM, Xen.</p> <p>Service-Oriented Architecture for Distributed Computing: Services and SOA – Message-Oriented Middleware – Portals and Science Gateways – Discovery-Registries-Metadata - Workflow in SOA</p> <p>Cloud Computing and Service Models – Data-center Design and Interconnection Networks – Architectural Design of Compute and Storage Clouds – Public cloud Platforms – Inter-cloud Resource Management – Cloud Security and Trust Management</p> <p>Cloud Programming and Software Environments – Features of Cloud and Grid Platforms – Parallel and Distributed Paradigms – Programming Support of Google App Engine – Amazon AWS and Microsoft Azure - Emerging Cloud Software Environments</p>			
<p>REFERENCES:</p> <ol style="list-style-type: none"> <li>1.Kai Hwang, Geoffrey C.Fox, and Jack J. Dongarra, "Distributed and Cloud Computing", Elsevier India Private Limited, 2012.</li> <li>2.Foster and Kesselman, "The Grid : Blueprint for a New Computing Infrastructure", Morgan Kauffman publishers 2004</li> <li>3.Coulouris, Dollimore and Kindber, "Distributed System: Concept and Design", Fifth Edition, Addison Wesley, 2011.</li> <li>4.Michael Miller, "Cloud Computing", Dorling Kindersley India, 2009.</li> <li>5. Anthony T. Velte, Toby J. Velte and Robert Elsenpeter, "Cloud computing: A practical Approach", McGraw Hill, 2010.</li> </ol>			



## NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

<b>COURSE OBJECTIVES</b>	
To learn the various concept of Distributed and Cloud computing and to study the Architecture and service models in Cloud computing.	
<b>MAPPING OF COs with POs</b>	
<b>Course Outcomes</b>	<b>Programme Outcomes (PO) (Enter Numbers only)</b>
1. Acquire knowledge on the features and development of cloud computing	PO I, II, III, IV, V
2. Define the principles of virtualization	PO I, II, III, IV, V
3. Use various performance criteria to evaluate the quality of the cloud architecture	PO III, IV, V
4. Identify the service oriented architecture for distributed computing workflow	PO I, II, III, IV, V

<b>COURSE PLAN – PART II</b>			
<b>COURSE OVERVIEW</b>			
<b>COURSE TEACHING AND LEARNING ACTIVITIES</b>			
<b>S.No.</b>	<b>Week/Contact Hours</b>	<b>Lab Exercises</b>	
1	Week 1 (3 Classes)	Scalable Computing – Technologies for Network-Based Systems – System Models for Distributed and Cloud Computing	PPT
2	Week 2 (3 Classes)	Software Environments for Distributed and Clouds – Performance, Security and Energy Efficiency	PPT
3	Week 3 (3 Classes)	Implementation Levels of Virtualization – Virtualization Structures - Tools and Mechanisms	PPT
4	Week 4 (3 Classes)	Virtualization of CPU, Memory and I/O Devices, Virtual Clusters and Resource Management	PPT
5	Week 5 (3 Classes)	Virtualization for Data Center Automation, Various Virtualization OS: VMware, KVM, Xen	PPT
6	Week 6 (3 Classes)	Services and SOA – Message-Oriented Middleware	PPT
7	Week 7 (3 Classes)	Portals and Science Gateways – Discovery	PPT
8	Week 8 (3 Classes)	Registries-Metadata - Workflow in SOA	PPT



## NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

9	Week 9 (3 Classes)	Cloud Computing: Service Delivery and Deployment Models	PPT
10	Week 10 (3 Classes)	Data Center Design, Interconnection Networks, Architectural Design of Compute and Storage Clouds – Public cloud Platforms	PPT
11	Week 11 (3 Classes)	Inter-cloud Resource Management – Cloud Security and Trust Management	PPT
12	Week 12 (3 Classes)	Cloud Programming and Software Environments – Features of Cloud and Grid Platforms	PPT
13	Week 13 (3 Classes)	Parallel and Distributed Paradigms -Programming Support of Google App Engine, Amazon AWS and Microsoft Azure	PPT
14	Week 14 (1 Class)	Emerging Cloud Software Environments	PPT

### COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle Test 1	As Per Academic Schedule	60 Minutes	20
2	Cycle Test 2	As Per Academic Schedule	60 Minutes	20
3	Assignment and Seminar	8 <sup>th</sup> week	-	10
CPA	Compensation Assessment	As Per Academic Schedule	60 Minutes	20
4	Final Assessment	As Per Academic Schedule	180 Minutes	50

### COURSE EXIT SURVEY

- The students through the class representative may give their feedback at any time to the course coordinator which will be duly addressed.
- The students may give their feedback during class committee meetings.

### COURSE POLICY

#### MODE OF CORRESPONDENCE

By Email: [ganga@nitt.edu](mailto:ganga@nitt.edu)



## NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

### COMPENSATION ASSESSMENT POLICY

Compensation assessment will be conducted for absentees in cycle test I or cycle test II only after the submission of medical or On-Duty certificates signed by competent authority.

### ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

### ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

### ADDITIONAL INFORMATION, IF ANY

### FOR APPROVAL

Course Faculty Gangad CC- Chairperson Litard

HOD L. S. S.



## NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

### Guidelines

- The number of assessments for any theory course shall range from 4 to 6.
- Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

- Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- Necessary care shall be taken to ensure that the course plan is reasonable and is objective.

