

Course Name: DISTRIBUTED COMPUTING	Course Code: ITNT305
pre-requisite: ITNT103-Network Fundamentals 1 & ITSE203- Object Oriented Programming.	Credit Hours: 3
Passing Grade: C	Level: B.Tech
No. Of Theory & Practical Hours (1:4)	
Goal: The student will be able to design, develop and attain problem solving skills using servers, applications and scenarios.	
Objectives: The course should enable the student to learn: <ul style="list-style-type: none"> • Understand fundamental concepts, principles, technical challenges and the requirements underlying modern distributed systems. • Appreciate distributed system technologies and their applications in solving highly computation extensive problems. • Apply the knowledge and skills learnt, to design a distributed systems' environment using available technologies/systems. 	
Outcomes	Method
1. Explain the relevant concepts, terminology and fundamental architectures underlying modern distributed systems	Theory
2. Explain the challenges in multi-level interoperability across heterogeneous distributed environment	Theory
3. Explain the properties and characteristics of advanced distributed systems, including communication, naming, synchronization, replication, fault tolerance and security.	Theory
4. Describe the principles underlying the function of distributed systems and their extension to cluster, grid and cloud computing, and virtualization techniques.	Theory & Practicals
5. Compare and contrast modern distributed system technologies and applications in terms of design, benefits, drawbacks, and limitations (including Clusters, Grids, Clouds and Virtualization based infrastructures)	Theory & Practical
6. Describe the operations of distributed technology in various applications such as Sensor Networks, Web Services, Internet of Things, Distributed File Systems etc.	Theory & Practical
7. Design an appropriate distributed system's environment using available technologies/systems.	Theory & Practical
Software & Hardware Tools: Java/ Python	
Book: Text Book	
1. Maarten Van Steen and Andrew S. Tanenbaum, "Distributed Systems: Principles and Paradigms", Pearson Education.	

<p>2. Maarten van Steen and Andrew S. Tanenbaum “A brief introduction to distributed systems”, article for open access at Springerlink.com</p>	
<p>Reference Book:</p> <ol style="list-style-type: none"> 1. Raja Malleswara Rao Pattamsetti, “Distributed Computing in Java 9”, Packt Publishing. 2. Francesco Pierfederici, “Distributed Computing with Python”, Packt Publishing. 	