

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI**  
**PROFORMA FOR NEW COURSE**

1.	Title of the Course	Cloud Computing Laboratory
2.	Course Number	CS6191
3.	Status of the Course	Core
4.	Structure of Credits	0-0-3-2
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Computer Science and Engineering
8.	To take effect from	July 2019
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	<b>Course Objective:</b> To give a hands-on experience on designing and building of cloud infrastructure at different levels of services; To give an exposure to different commercial cloud architectures through case study.	
12.	<b>Course Content:</b> Distributed computing: implementing distributed coordination framework using Apache Zookeeper, managing and implementing Hadoop and Spark services, Hadoop distributed file system (HDFS) and developing application frameworks that use HDFS; Design and implement Ceph storage; Hands-on experience in implementing OpenStack cloud infrastructure; Design and use Apache Spark as cloud computing framework; Network virtualization techniques such as virtual local area network, virtual extensible local area network, and generic routing encapsulation; Case study on understanding the commercial cloud frameworks such as Amazon elastic compute cloud.	
13.	Text book(s): 1. Marinescu D C, <i>Cloud Computing: Theory and Practice</i> , Morgan Kaufman (2014). 2. Solberg M and Silverman B, <i>OpenStack for Architects</i> , Packt (2018).	
14.	Reference(s): 1. Chambers B and Zaharia M, <i>Spark: The Definitive Guide</i> , O' Reilly (2018). 2. Denton J, <i>Learning OpenStack Networking (Neutron)</i> , Packt (2015). 3. Doherty J, <i>SDN and NFV Simplified</i> , Pearson (2016). 4. White T, <i>Hadoop: The Definitive Guide</i> , O' Reilly (2012).	