

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Operating Systems
2.	Course Number	CS3107
3.	Status of the Course	Core
4.	Structure of Credits	3-0-0-3
5.	Offered To	UG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Computer Science and Engineering
8.	To take effect from	July 2018
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective: To teach the fundamental concepts of modern operating systems on the broad perspectives of process, memory, and storage management.	
12.	Course Content: Introduction: Review of computer organization, history of operating systems; Process management: Concepts of threads and processes, processor scheduling (including multicore architectures); Process synchronisation: Semaphores, monitors, mutual exclusion, and priority inversion; Deadlocks: Deadlock characterization, prevention, and avoidance; Memory management: Swapping, paging, segmentation, virtual memory management (demand paging), page replacement, and frame allocation; Storage management: File concepts, file system implementation, disk scheduling and management, redundant array independent disks, Input/Output (I/O) hardware overview, application I/O interface, and kernel I/O subsystems; Introduction to secure operating systems.	
13.	Text book(s): 1. Comer D, <i>Operating System Design: The Xinu Approach</i> , CRC (2015). 2. Silbershatz A, Galvin P and Gagne G, <i>Operating System Concepts with Java</i> , John Wiley and Sons (2018).	
14.	Reference(s): 1. Deitel H and Deitel P, <i>Operating Systems</i> , Pearson (2013).	