

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,
NANDED [M.S.]**

Choice Based Credit System
(CBCS Pattern)
Faculty of Science and Technology
Syllabus of B.Sc. Second Year
Effective from Academic Year (2017-2018)
Under Graduate (UG) Program

Subject : **Computer Science**

Semester Pattern	Core Course Code Section	Paper No. & Title	Periods/ Week	Marks for		Total Credits (Marks)
				External: ESE TH+MCQ [30+10]	Internal: CA & SEC	
Semester-III	CCCS-III Section-A	Theory Paper No.VI Operating System	03	Marks: 40	Marks: 10	Credits: 02 (Marks:50)
	CCCS-III Section-B	Theory Paper No.VII Programming in C++	03	Marks: 40	Marks: 10	Credits: 02 (Marks:50)
	CCCSP-II Section-A	Paper No. X Laboratory Course Work (LCW)-II: Practical's based on theory papers-VI & VII (OS and C++)	04	Marks: 40	Marks: 10	Credits: 02 (Marks:50)
	SECCS-I	Paper No. XI Skill Enhancement Course-I: A) Programming in SCILAB-I OR B) PC Installation & Networking	03	Marks: 25	Marks: 25	Credits: 02 (Marks:50)
Semester-IV	CCCS-IV Section-A	Theory Paper No. VIII Computer Network	03	Marks: 40	Marks: 10	Credits: 02 (Marks:50)
	CCCS-IV Section-B	Theory Paper No. IX Programming in JAVA	03	Marks: 40	Marks: 10	Credits: 02 (Marks:50)
	CCCSP-III Section-B	Paper No.XII Laboratory Course Work (LCW)-III: Practical's based on theory papers-VIII & IX (CN & Java)	04	Marks: 40	Marks: 10	Credits: 02 (Marks:50)
	SECCS-II	Paper No. XIII Skill Enhancement Course-II: A) Web Applications OR B) Digital Media	03	Marks: 25	Marks: 25	Credits: 02 (Marks:50)
Total				ESE Marks:290	SEC+CA Marks:50 +60=110	Credits:16 Marks:400
(CCC: Core Course Computer, CCCP: Core Course Computer Practical, LCW: Laboratory Course Work, ESE: End of semester examination, CA: Continuous assessment, SEC: Skill Enhancement Course)						
Note: The size of the practical group/batch for practical papers is recommended to be 10-15 students as per the UGC Guidelines Under CBCS (Choice Based Credit System) -May 2015.						

Paper VI: Operating System

Unit I: Overview of Operating System Introduction, What Operating Systems Do, Computer-System Organization, Computer System Architecture, Special-Purpose Systems, Operating-System Structure, Operating System Operations, Process Management, Memory Management, Storage Management, Protection and Security, Distributed Systems, Special-Purpose Systems, Computing Environments

Unit II: Exploring Operating System Operating-System Services, User Operating-System Interface, System Calls, Types of System Calls, System Programs, Operating-System Design and Implementation, Operating-System Structure, Virtual Machines, Operating-System Generation, System Boot

Unit III: Process & Threads Process Concept, Process Scheduling, Operations on Processes, Inter-process Communication, Examples of IPC Systems, Communication in Client- Server Systems, Overview of threads, Multithreading Models

Unit IV: Memory Background, Swapping, Contiguous Memory Allocation, Paging, Structure of the Page Table, Segmentation, virtual memory

Unit V: File System File Concept, Access Methods, Directory Structure, File-System Mounting, File Sharing, Protection, File-System Structure

Unit VI: Protection in Operating System Goals of Protection, Principles of Protection, Domain of Protection, Access Matrix, Implementation of Access Control, Revocation of Access Rights, Capability-Based Systems, Language-Based Protection

Text/Reference Books: 1. A SILBERSCHATZ, et.al. "Operating System Concepts", John Wiley & Sons. 2. A Tanenbaum "Modern Operating Systems", PHI Publication 3. William Stallings "Operating Systems", Prentice Hall

Online References: 1. www.os-book.com