

KRISHNASAMY

College of
ENGINEERING & TECHNOLOGY

Approved by AICTE & Affiliated to Anna University
Anand Nagar, Nellikuppam Main Road, S. Kumarapuram, Cuddalore - 607 109, Tamil Nadu.
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DEPARTMENT OF CSE

Date: 14.12.2021

CIRCULAR

Ref.: KCET/CSE/VAC/CIRCULAR/2021-22/01.

The following Value Added Course will be conducted during the academic year 2021-2022. The course will be conducted from 22.02.2022 to 26.02.2022. Students are instructed to register their names in the course allotted to them.

Note: Students are instructed to attend the program without fail.

S.No.	Course Code	Name of the Course	Year	No. of Period	Course Coordinator
1	CS-VAC2101	UNIX INTERNALS	IV	30	Ms.C.Reikha, AsP / HOD - CSE
2	CS-VAC2102	SYSTEM SOFTWARE	III	30	Mrs.P.M.Kamatchi, AP – CSE Mrs.P.Vijaya Sarathy, AP - CSE

C. Rajendran
14/12/21
HOD/CSE

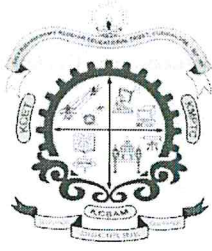
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Department of Computer Science & Engineering

SYLLABUS

Subject Code/ Subject Name: CS-VAC2101 – UNIX INTERNALS

Duration: 30 Hours

COURSE OBJECTIVES:

- To learn about the design of the UNIX operating system.
- To become familiar with the various data structures used.
- To learn the various low-level algorithms used in UNIX.

MODULE I OVERVIEW 8

General Overview of the System: History – System structure – User perspective – Operating System Services – Assumptions about Hardware. Introduction to the Kernel Architecture of the UNIX Operating System – Introduction to System Concept - The Buffer Cache - Buffer headers – Structure of the Buffer Pool – Scenarios for Retrieval of a Buffer— Advantages and Disadvantages of the Buffer Cache.

MODULE II FILE SUBSYSTEM 8

Internal Representation of Files: Inodes – Structure of a Regular File – Directories – Conversion of a Path Name to an Inode – Super Block – Inode Assignment to a New File – Allocation of Disk Blocks.

MODULE III SYSTEM CALLS FOR THE FILE SYSTEM 7

Open – Read – Write – File And Record Locking – Adjusting the Position of File I/O – lseek – close – File Creation – Creation of Special Files – Changing Directory – Root – Owner - Mode – stat and fstat – Pipes – dup – Mounting And Un mounting File Systems – link – unlink.

MODULE IV PROCESSES 7

Process States and Transitions – Layout of System Memory – The Context of a Process – Saving

the Context of a Process – Manipulation of the Process Address Space - Process Control -
process Creation – Signals – Process Termination – Awaiting Process Termination – Invoking
other programs

TOTAL: 30 PERIODS

COURSE OUTCOMES:

On Completion of the course, the students should be able to:

- To design and implement the subsystems of an operating system.
- To explain the data structures of an open source operating system.
- To modify and implement the data structures and algorithms of an open source operating system.

TEXT BOOK:

1. Maurice J. Bach, “The Design of the Unix Operating System”, First Edition, Pearson Education, 1999.

REFERENCES:

1. B. Goodheart, J. Cox, “The Magic Garden Explained”, Prentice Hall of India, 1986.
2. S. J. Leffler, M. K. Mckusick, M. J. Karels and J. S. Quarterman., “The Design and Implementation of the 4.3 BSD Unix Operating System”, Addison Wesley, 1998.
3. Robert Love, "Linux Kernel Development", III Edition, Addison Wesley, 2010.

C-Perdha
12/12/21
HOD

