CHENNAI INSTITUTE OF TECHNOLOGY

Department of Computer Science & Engineering

Security Lab

Major Equipments available in the Lab

S. No.	Hardware	Specification	Quantity
1	Desktops	Intel Core i3 / 2GB/500GB HDD	30 Nos.
	Software		
2	C / C++ / Java or equivalent compiler GnuPG, Snort, N-Stalker or Equivalent		

Courses Offered

S.No.	ODD Semester	Class	No. of Sessions	EVEN Semester	Class	No. of Sessions
1	Security Laboratory	VII Sem CSE	4	Internet Programming Laboratory	VI Sem CSE	4
2				Operating System Laboratory	IV Sem CSE	4
Percentage of Lab Utilization : 40%				Percentage of Lab Utilization : 80%		

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CS 8461 OPERATING SYSTEMS LABORATORY IV Sem CSE

Objectives:

- To learn Unix commands and shell programming.
- To implement various CPU Scheduling Algorithms.
- To implement Process Creation and Inter Process Communication.
- To implement Deadlock Avoidance and Deadlock Detection Algorithms.
- To implement Page Replacement Algorithms.
- To implement File Organization and File Allocation Strategies.

Outcomes:

- Compare the performance of various CPU scheduling algorithms.
- Implement deadlock avoidance and detection algorithms.
- Implement Semaphores.
- Create processes and implement IPC.
- Analyze the performance of the various page replacement algorithms.
- Implement file organization and file allocation strategies.

List of Experiments

01. Basics of UNIX commands.
02. Write programs using the following system calls of UNIX operating system fork, exec, getpid, exit, wait, close, stat, opendir, readdir.
03. Write C programs to simulate UNIX commands like cp, ls, grep, etc.
04. Shell Programming.
05. Write C programs to implement the various CPU Scheduling Algorithms.
06. Implementation of Semaphores.
07. Implementation of Shared memory and IPC.
08. Bankers Algorithm for Deadlock Avoidance.
09. Implementation of Deadlock Detection Algorithm.
10. Write C program to implement Threading & Synchronization Applications.
11. Implementation of the following Memory Allocation Methods for fixed partition
    a) First Fit b) Worst Fit c) Best Fit.
12. Implementation of Paging Technique of Memory Management.
13. Implementation of the following Page Replacement Algorithms
    a) FIFO b) LRU c) LFU.
14. Implementation of the various File Organization Techniques.
15. Implementation of the following File Allocation Strategies
    a) Sequential b) Indexed c) Linked.

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CS 8661 **INTERNET PROGRAMMING LABORATORY** **VI Sem CSE**

Objectives:

- To be familiar with web page design using HTML/XML and style sheets.
- To be exposed to creation of user interfaces using Java frames and applets.
- To learn to create dynamic web pages using server side scripting.
- To learn to write client server applications.
- To be familiar with the PHP programming.
- To be exposed to creating applications with AJAX.

Outcomes:

- Construct Web pages using HTML/XML and style sheets.
- Build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.
- Develop dynamic web pages using server side scripting.
- Use PHP programming to develop web applications.
- Construct web applications using AJAX and web services

List of Experiments

1. Create a web page with the following using HTML
   a) To embed a map in a web page b) To fix the hot spots in that map
   c) Show all the related information when the hot spots are clicked.
2. Create a web page with the following.
   a) Cascading style sheets b) Embedded style sheets c) Inline style sheets
   Use our college information for the web pages.
3. Validate the Registration, user login, user profile and payment by credit card pages using JavaScript.
4. Write programs in Java using Servlets:
   i) To invoke servlets from HTML forms ii) Session tracking using hidden form fields and Session tracking for a hit count.

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CS 8661 **INTERNET PROGRAMMING LABORATORY** **VI Sem CSE**

List of Experiments

5. Write programs in Java to create three-tier applications using servlets for conducting on-line examination for displaying student mark list. Assume that student information is available in a database which has been stored in a database server.
6. Install TOMCAT web server. Convert the static web pages of programs into dynamic webpages using servlets (or JSP) and cookies.
   Hint: Users information (user id, password, credit card number) would be stored in web.xml. Each user should have a separate shopping cart.
7. Redo the previous task using JSP by converting the static web pages into dynamic web pages. Create a database with user information and books information. The books catalogue should be dynamically loaded from the database.
8. Create and save an XML document at the server, which contains 10 users Information. Write a Program, which takes user Id as an input and returns the User details by taking the user information from the XML document.
9. Validate the form using PHP regular expression. PHP stores a form data into database.
10. Write a web service for finding what people think by asking 500 people's opinion for any consumer product.

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IT 8761 **SECURITY LABORATORY** **VII Sem CSE**

Objectives:

- To learn different cipher techniques.
- To implement the algorithms DES, RSA,MD5,SHA-1.
- To use network security tools and vulnerability assessment tools.

Outcomes:

- Develop code for classical encryption techniques to solve the problems.
- Build cryptosystems by applying symmetric and public key encryption algorithms.
- Construct code for authentication algorithms.
- Develop a signature scheme using digital signature standard.
- Demonstrate the network security system using open source tools.

List of Experiments

01. Perform encryption, decryption using the following substitution techniques i) Ceaser cipher, ii) Playfair cipher iii) Hill cipher iv) Vigenere cipher.
02. Perform encryption and decryption using following transposition techniques i) Rail fence ii) Row & Column transformation.
03. Apply DES algorithm for practical applications.
04. Apply AES algorithm for practical applications.
05. Implement RSA Algorithm using HTML and JavaScript
06. Implement the Diffie-Hellman Key Exchange algorithm for a given problem.
07. Calculate the message digest of a text using the SHA-1 algorithm.
08. Implement the SIGNATURE SCHEME - digital signature standard.
09. Demonstrate intrusion detection system (ids) using any tool eg. Snort or any other s/w.
10. Automated attack and penetration tools exploring N-Stalker, a vulnerability assessment Tool
11. Defeating Malware i) Building Trojans ii) Rootkit Hunter