3/4 B.Tech. SECOND SEMESTER

IT6L1 NETWORK PROGRAMMING LAB Credits: 2

Lecture: -- **Internal assessment: 25 marks**
Lab: 3 periods /week **Semester end examination: 50 marks**

Objectives:

- To provide an in depth knowledge of Berkley sockets and the system calls needed to support network programming.
- To discuss socket API and implementation of connection-oriented, connectionless services.
- To teach students various forms of IPC through UNIX and socket programming.

Outcomes:

Students will be able to:

- Use network programming concepts to develop and implement distributed applications and protocols over the Internet.
- Program client/server systems over transport layer protocols.
- Carry out different models and development tasks in networking.

Exercises:

1. Design TCP iterative server and client application to reverse the given input sentence.
2. Design TCP Concurrent server and client application to reverse the given input sentence.
3. Design TCP client and server application to transfer file.
4. Design a TCP concurrent server to convert a given text into upper case using multiplexing system call “select”.
5. Design a TCP concurrent server to echo given set of sentences using “poll” functions.
6. Design UDP Client and server application to reverse the given input sentence.
7. Design UDP Client server to transfer a file.
8. Design using poll client server application to multiplex TCP and UDP requests for converting a given text into upper case.
9. Implement the following forms of IPC.
   a)Pipes b)FIFO

10. Implement file transfer using Message Queue form of IPC.
11. Write a program to illustrate the concept of file locking.
12. Write a program to create an integer variable using shared memory concept and increment the variable simultaneously by two processes. Use semaphores to avoid race conditions.

Reference Books:

1. UNIX Network Programming, Vol. I,Sockets API, 2nd Edition. - W.Richard Stevens, Pearson Education. Asia.
2. Advanced UNIX Programming, NB Venkateswarlu, BS Publications, 2nd edition