

**BWARNANDHIRA  
COLLEGE OF ENGINEERING AND TECHNOLOGY  
(AUTONOMOUS)  
SEETHIARAMPURAM, NARSAPUR-534280, WG- DT, AP  
DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**

**TEACHING PLAN**

| Course Code | Course Title             | Year / Sem. | Branch | Contact Hr/ week | Academic Year | Date of Commencement of Semester |
|-------------|--------------------------|-------------|--------|------------------|---------------|----------------------------------|
| 20MC3L03    | Network and Security Lab | II/III      | MCA    | 3                | 2024-25       | 22.08.2024                       |

**Course Outcomes (COs):** At the end of the course, student will be able to

| Course Outcomes |   | Knowledge Level (K)# |
|-----------------|---|----------------------|
| <b>CO1</b>      | Implement Data Link layers methods  | <b>K3</b>            |
| <b>CO2</b>      | Demonstrate Networking programs   | <b>K3</b>            |
| <b>CO3</b>      | Apply the knowledge of symmetric cryptography to implement encryption and decryption using Ceaser Cipher, Substitution Cipher, Hill Cipher          | <b>K3</b>            |
| <b>CO4</b>      | Demonstrate the different algorithms like DES, BlowFish, and Rijndael, encrypt the text "Hello world" using BlowfishAlgorithm.                      | <b>K2</b>            |
| <b>CO5</b>      | Analyze and implement public key algorithms like RSA, Diffie-Hellman Key Exchange mechanism, the message digest of a text using the SHA-1 algorithm | <b>K4</b>            |

| S.No              | EXERCISE/PROGRAM   | Proposed Number Labs |
|-------------------|--|----------------------|
| <b>EXERCISE-1</b> |  |                      |
| 1                 | Implement the data link layer framing methods such as character stuffing and bit stuffing. | 1                    |
| <b>EXERCISE-2</b> |  |                      |

|                    |   |   |
|--------------------|---|---|
| 2                  | Implement on a data set of characters the three CRC polynomials - CRC 12, CRC16 and CRCCCIP.  | 1 |
| <b>EXERCISE-3</b>  |   |   |
| 3                  | Implement Dijkstra's algorithm to compute the Shortest path through a graph.  | 1 |
| <b>EXERCISE-4</b>  |   |   |
| 4                  | Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table at each node using distance vector routing algorithm                             | 1 |
| <b>EXERCISE-5</b>  |   |   |
| 5                  | Take an example subnet of hosts. Obtain broadcast tree for it   | 1 |
| <b>EXERCISE-6</b>  |   |   |
| 6                  | Write a C program that contains a string (char pointer) with a value 'Hello World'. The program should XOR each character in this string with 0 and displays the result.            | 1 |
| <b>EXERCISE-7</b>  |   |   |
| 7                  | Write a C program that contains a string (char pointer) with a value 'Hello World'. The program should AND or and XOR each character in this string with 127 and display the result | 1 |
| <b>EXERCISE-8</b>  |   |   |
| 8                  | Write a Java program to perform encryption and decryption using the following algorithms:<br>a) Ceaser Cipher<br>b) Substitution Cipher<br>c) Hill Cipher                           | 1 |
| <b>EXERCISE-9</b>  |   |   |
| 9                  | Write a Java program to implement the DES algorithm logic   | 1 |
| <b>EXERCISE-10</b> |   |   |

|                          |  |   |
|--------------------------|--|---|
| 10                       | Write a C/JAVA program to implement the BlowFish algorithm logic   | 1 |
| <b>EXERCISE-11</b>       |  |   |
| 11                       | Write a C/JAVA program to implement the Rijndael algorithm logic.  | 1 |
| <b>EXERCISE-12</b>       |  |   |
| 12                       | Using Java Cryptography, encrypt the text "Hello world" using BlowFish.  | 1 |
| <b>EXERCISE-13</b>       |  |   |
| 13                       | <p>Create your own key using Java key tool.</p> <p>a) Write a Java program to implement RSA Algorithm</p> <p>b) Write a Java program to implement Public key Algorithm like ElGamal</p> <p>c) Implement the Diffie-Hellman Key Exchange mechanism using HTML and JavaScript. Consider the end user as one of the parties (Alice) and the JavaScript application as other party(bob).</p> <p>d) Calculate the message digest of a text using the SHA-1 algorithm in JAVA.</p> <p>e) Calculate the message digest of a text using the MD5 algorithm in JAVA.</p> | 1 |
| Lab Internal Examination |  |   |

*G. Adhikari*  
Faculty

*Arjun*  
Head of the Department

*A. J. ...*  
Principal