**Lesson Plan**

**Name of Faculty : Er. Arushi Bansal, Guest Faculty of CSE**

**Discipline : Computer Science and Engineering**

**Semester : 5th (odd)**

**Subject : Cryptography and network security (PCC-CSE304-T)**

**Lesson Plan Duration : August to December-2022**

**Work Load (Lecture/Practical) per week (in hours): Lectures-03hours**

| **Week** | **Theory** | **Topic Covered Date and Remarks** |
| --- | --- | --- |
| **Lecture Day** | **Topic (Including Assignment/Test)** | **Date** | **HOD** | **Director-Principal** |
| 1st | 1 | Overview of classical cryptosystem |  |  |  |
| 2 | Stream and block cipher |  |  |  |
| 3 | Cipher and cipher modes, Substitution cipher: monoalphabetic and polyalphabetic |  |  |  |
| 2nd | 4 | Transposition cipher: rail fence, scytale |  |  |  |
| 5 | Book cipher, vernam cipher |  |  |  |
| 6 | Vignere tabluae, hill cipher, Cryptanalysis of classical cryptosystem |  |  |  |
| 3rd | 7 | Revision of unit 1 |  |  |  |
| 8 | Private/symmetric key cryptography:DES |  |  |  |
| 9 | AES, Feistel networks, modes of operation |  |  |  |
| 4th | 10 | RSA |  |  |  |
| 11 | Elliptic curve cryptography |  |  |  |
| 12 | Diffie hellman key exchange, Digital signature, knapsack algorithm |  |  |  |
| 5th | 13 | Public key infrastructure, Kerberos, secret sharing scheme |  |  |  |
| 14 | Digital certificates, X.509 certificates |  |  |  |
| 15 | Revision of unit 3 |  |  |  |
| 6th | 16 | Attacks: types |  |  |  |
| 17 | Detection, mitigation |  |  |  |
| 18 | Network security foundations, Defence models |  |  |  |
| 7th | 19 | Access control: authentication and authorization |  |  |  |
| 20 | Network architecture, Network device security, wireless security |  |  |  |
| 21 | Firewalls, IDS |  |  |  |
| 8th | 22 | Email , PGP |  |  |  |
| 23 | PEM, S-MIME, Proxy servers |  |  |  |
| 24 | SSl, TLS, SET |  |  |  |
| 9th | 25 | SHTTP, IPSec |  |  |  |
| 26 | Virual private network security |  |  |  |
| 27 | Elementary number theory |  |  |  |
| 10th | 28 | Finite fields |  |  |  |
| 29 | Groups and subgroups |  |  |  |
| 30 | Matrix representation, Symmetric matrix and diagnolazation |  |  |  |
| 11th | 31 | Number theory: divisibility |  |  |  |
| 32 | Gcd, prime number, primality testing, Congruence |  |  |  |
| 33 | Chinese remainder theorem |  |  |  |
| 12th | 34 | Fermat theorem |  |  |  |
| 35 | Eulers theorem |  |  |  |
| 36 | Modular arithmetic and its properties, Modular exponential |  |  |  |
| 13th | 37 | Revision of unit 2 |  |  |  |
| 38 | Revision of unit 3 |  |  |  |
| 39 | Revision of unit 4 |  |  |  |