

SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING TEACHING PLAN

| Course Code | Course Title (Regulation) | Semester/ Sections | Bran ch | Contact Periods/ Week | Academic Year | Date of commencemen t of Semester | |
|----------------|--|-------------------------|------------|-----------------------------|------------------|-----------------------------------|--|
| 20CS7E01 | Cryptography and Network Security (R20) | VII A, B, C, D &E | CSE | 5 | 2025 - 26 | 09.06.2025 | |
| | COURSE OUTCOMES After completion of the course students are able to | | | | | | |
| CO 1 | Apply different security threats, countermeasures and foundation course of cryptography mathematics. (K3) | | | | | | |
| CO 2 | Classify basic principles of symmetric key algorithms and operations of some symmetric key algorithms and asymmetric key cryptography (K2) | | | | | | |
| CO 3 | Restate basic principles of public key algorithms and Working operations of some Asymmetric key algorithms (K) | | | | | | |
| CO 4 | Show applications of hash algorithms, digital signatures and key management techniques(K3) | | | | | | |
| CO 5 | Determine the knowledge of Application layer, Transport layer and Network layer security Protocols(K3) | | | | | | |

| Unit No | Out Comes / Bloom's Level | Topics No. | Topics/Activity | Text Book/ Reference | Contact Hour | Delivery Method | | |
|------------|---|--|---|----------------------------|-----------------|-------------------------|--|--|
| | | Unit-1: Introduction | | | | | | |
| | | 1.1 | Basic Principles: Security Goals | T1 | 1 - | | | |
| | | 1.2 | Security Attacks | T1 | 1 | | | |
| | | 1.3 | Security Services | T1 | 1 | | | |
| | CO1.: Apply different security threats, countermeasures and foundation course of cryptography mathematics. (K3) | 1.4 | Security Mechanisms | T1 | 1 | | | |
| 1 | | 1.5 | Basics of Cryptography: Symmetric Cipher Model | T1 | 1 | Chalk & Talk, PPT | | |
| | | 1.6 | Substitution Techniques | T1 | 2 | | | |
| | | 1.7 | Phishing and Defensive Measure | T1 | 2 | | | |
| | | 1.8 | Web-Based Attacks | T1 | 1 | | | |
| | | 1.9 | Structured Query Language (SQL) Injection attacks | T1 | 1 | | | |
| | | 1.10 | Content beyond | T1 | 1 | | | |
| | | 1.11 | Class Test | T1 | 1 | | | |
| | | | | Total | 13 | | | |
| 2 | | Unit-2: Traditional Block Cipher Structure | | | | | | |
| 2 | | 2.1 | Stream Cipher and Block Cipher) | T1 | 2 | | | |

| CO2, Classify basic principles of symmetric key algorithms and operations of some symmetric key algorithms and operations of some symmetric key algorithms and asymmetric key algorithms and asymmetric key algorithms and asymmetric key cryptography (K2) | | | | | | | | | | |
|--|---|--|------|---|-------|----|----------|--|--|--|
| Symmetric key algorithms and operations of some symmetric key algorithms (key caryptography) (K2) 2.3 Data Encryption Standard T1 2 2 2.5 Data Encryption Standard T1 2 2 2.5 Encryption Algorithm) T1 2 2 2 2.5 Encryption Algorithm T1 2 2 2 2 2 2 2 2 2 | | principles of symmetric key | 2.2 | Mathematics of Symmetric | Т1 | 2 | | | | |
| Operations of some symmetric key algorithms and asymmetric key cryptography (K2) | | | 2.3 | Introduction to Modern | T1 | 2 | | | | |
| Algorithms and asymmetric key cryptography (K2) | | 1 - | 2.4 | | T1 | 2 | G1 11 0 | | | |
| CO 4, Show applications of hash alsorithms, digital signatures and key management techniques(K3) CO 4, Show applications of hash alsorithms, digital signatures and key management techniques(K3) CO 5, Determine the knowledge of Application layer, 5 Transport layer and Network layer security Protocols(K3) Co 5, Determine the knowledge of Application layer, 5 Transport layer and Network layer security Protocols(K3) Content beyond | | algorithms and | 2.5 | | T1 | 2 | Talk, | | | |
| 2.8 Class Test T1 | | | 2.6 | Advanced Encryption | T1 | 2 | rri | | | |
| CO 3. Restate basic principles of public key algorithms and Working operations of some Asymmetric key algorithms (K2) 3.4 Diffie-Hellman Key Exchange T1 2 Talk, PPT | | | 2.7 | Content beyond | T1 | 1 | | | | |
| CO 3. Asymmetric Key T1 Cryptography T1 2 Chalk & Talk, PPT | | | 2.8 | Class Test | T1 | 1 | 1 | | | |
| CO 3. | | | | | Total | 14 | 1 | | | |
| CO 3. | | | | Unit-3: Asymmetric Encryp | otion | | 1 | | | |
| CO 3. Restate basic principles of public key algorithms and Working operations of some Asymmetric key algorithms (K2) 3.4 Diffie-Hellman Key T1 2 Exchange T1 2 Talkk, PPT | | | 3.1 | Mathematics of Asymmetric Key | | 3 | | | | |
| 3 Principles of public key algorithms and Working operations of some Asymmetric key algorithms (K2) 3.4 Diffie-Hellman Key Exchange T1 2 Talk, PPT | | - | 3.2 | Asymmetric Key | T1 | 2 | | | | |
| Solution | 3 | | 3.3 | | T1 | 2 | Cl11- 0- | | | |
| A | | Working operations of some Asymmetric | 3.4 | The court mile out is the court of the cour | T1 | 2 | Talk, | | | |
| 3.7 Class Test T1 1 1 Total 13 Total 13 | | | 3.5 | 7.2.00 PM | T1 | 2 | | | | |
| NID EXAMINATIONS | | | 3.6 | Content beyond | T1 | 1 | | | | |
| A | | | 3.7 | Class Test | T1 | 1 | | | | |
| CO 4. Show applications of hash algorithms, digital signatures and key management techniques(K3) | | | | | Total | 13 | | | | |
| 4.1 Hash Function T1 2 Applications of | | | N | IID I EXAMINATIONS | | | | | | |
| Applications of Applications of Applications of Applications of hash algorithms, digital signatures and key management techniques(K3) | | Unit-4: Data Integrity, Digital Signature Schemes & Key Mana | | | | | | | | |
| 4 CO 4. Show applications of hash algorithms, digital signatures and key management techniques(K3) 4.4 Message Integrity and Message Authentication T1 2 Talk, PPT | | | 4.1 | Hash Function | T1 | 2 | | | | |
| A applications of hash algorithms, digital signatures and key management techniques(K3) | | applications of hash algorithms, digital signatures and key management | 4.2 | Cryptographic Hash | T1 | 1 | | | | |
| Signatures and key management techniques(K3) | | | 4.3 | | T1 | 1 | G1 11 0 | | | |
| techniques(K3) | 4 | | 4.4 | | T1 | 2 | Talk, | | | |
| 4.6 Distribution. | | | 4.5 | Digital Signature | T1 | 2 | PPI | | | |
| 4.8 Class Test Total CO 5. Determine the knowledge of Application layer, Transport layer and Network layer security Protocols(K3) 4.8 Class Test Total Total 12 Unit 5: Network Security-I&II S.1 Remote User Authentication Principles T1 1 Chalk & Talk, PPT Talk, Security application layer: T1 1 Total T1 1 Chalk & Talk, PPT | | | 4.6 | | T1 | 2 | | | | |
| CO 5. Determine the knowledge of Application layer, Transport layer and Network layer security Protocols(K3) Determine the knowledge of Application layer, Authentication Principles Security Frotocols(K3) Total 12 Unit 5: Network Security-I&II Security-I&II Authentication Principles T1 1 1 Chalk & Talk, PPT T1 1 1 PPT | | | 4.7 | Content beyond | T1 | 1 | | | | |
| CO 5. Determine the knowledge of Application layer, Transport layer and Network layer security Protocols(K3) Security application layer: To be a considered by the constant of the knowledge of Application layer, Authentication Principles | | | 4.8 | Class Test | T1 | 1 | | | | |
| knowledge of Application layer, Transport layer and Network layer security Protocols(K3) Remote User Authentication Principles T1 1 Chalk & Talk, PPT Securityat application layer: T1 1 PRINCIPLE SECURITY T1 1 T1 1 T1 1 T2 T3 T1 T1 T1 T1 T1 T1 T1 T1 T1 T2 T3 T3 T3 T4 T5 | | | | | Total | 12 | | | | |
| Application layer, Transport layer and Network layer security Protocols(K3) Application layer, Authentication Principles T1 1 Chalk & Talk, PPT Securityat application layer: T1 1 T1 1 T1 | | The second secon | Unit | | | | | | | |
| Network layer security Protocols(K3) Security Protocols(K3) Security Security Security Security Security Security application layer: Security Security T1 Secur | 5 | Application layer, | 5.1 | TAKAN PANTAN MANAGER PAT | T1 | 1 | Chalk & | | | |
| security Protocols(K3) 5.3 Web Security T1 1 PPT Securityat application layer: | | 1 | 5.2 | Kerberos | T1 | 1 | Talk, | | | |
| 5 A Security at application layer. T1 | | security | 5.3 | | T1 | 1 | | | | |
| | | Protocols(K3) | 5.4 | | T1 | 1 | | | | |

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| | N | IID II EXAMINATIONS | | |
|--|------|---|-------|----|
| a complete control of the control of | CUN | MULATIVE PROPOSED PER | RIODS | 64 |
| | | 5 | Total | 12 |
| | 5.12 | Class Test | T1 | 1 |
| | 5.11 | Content beyond | T1 | 1 |
| | 5.10 | System Security | T1 | 1 |
| | 5.9 | Security at the Network Layer: IPSec | T1 | 1 |
| | 5.8 | Secure Shell (SSH), | T1 | 1 |
| 41 | 5.7 | TLS | T1 | 1 |
| | 5.6 | Security at the Transport Layer: SSL | T1 | 1 |
| | 5.5 | S/MIME | T1 | 1 |

| Text 1 | Books | |
|------------|--------|---|
| Sl. No. | | AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION |
| 1 | T1 | Cryptography and Network Security, 3 rd Edition Behrouz A Forouzan, Deb deepMukhopadhyay, McGraw Hill,2020 |
| 2 | T2 | Cryptography and Network Security,4 th Edition, William Stallings, (6e) Pearson,2018 |
| 3 | Т3 | Everyday Cryptography, 1st Edition, Keith M. Martin, Oxford,2018 |
| Refer | ence l | Books |
| 1 | R1 | Network Security and Cryptography, 1st Edition, Bernard Meneges, CengageLearning,2018 |

| | | Name | Signature with Date |
|------|-------------------------------|---------------------|---------------------|
| i. | Faculty-I | Dr.P. Srinivasulu | (N) |
| ii. | Course Coordinator Faculty-II | Dr P. Pandarinath | Jelen A |
| iii. | faculty -III | Dr S. Gopinath | les. |
| iv. | faculty -IV | Mr M. Satyanarayana | 2/- |
| v. | faculty -V | Mr K. Rajesh Kumar | 87 |
| vi. | Module Coordinator | Mr K.Rajesh Kumar | 62 |
| vii. | Programme Coordinator | Dr.P.Srinivasulu | 192 |

PRINCIPAL