



तीर्थकर महावीर विश्वविद्यालय
Teerthanker Mahaveer University
An Ultimate Destination for World Class Education

COURSE FILE

FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE& ENGINEERING

Program	:	B.Tech. CSE
Academic Year	:	2019-20
Faculty Member	:	Mr. Kamal Kumar Gola
Faculty Email Id	:	
Course Name	:	Cryptography and Network Security
Course Code	:	ECS 703
Semester	:	VII


Director
Faculty of Engineering
Teerthanker Mahaveer University
Moradabad.

Index

S. No.	Description	Yes	No
1	Academic calendar	√	
2	Individual faculty time table	√	
3	Syllabus	√	
4	Hand Outs	√	
5	Class Tests (CTs) I, II, & III	√	
6	Award List (Internal) I, II, & III	√	
7	Rubrics List for Internal Practical Assessment(<i>Only for Lab Courses</i>)	NA	NA
8	Identification of Slow Learners	√	
9	Special classes with attendance sheet of slow learners with ATR after each CT	√	
10	Assignments	√	
11	Question Bank	√	
12	Attendance Sheet (Month-wise)	√	
13	E-contents (web links)	√	

Index

S. No.	Description	Yes	No
1	Academic calendar	√	
2	Individual faculty time table	√	
3	Syllabus	√	
4	Hand Outs	√	
5	Class Tests (CTs) I, II, & III	√	
6	Award List (Internal) I, II, & III	√	
7	Rubrics List for Internal Practical Assessment(<i>Only for Lab Courses</i>)	NA	NA
8	Identification of Slow Learners	√	
9	Special classes with attendance sheet of slow learners with ATR after each CT	√	
10	Assignments	√	
11	Question Bank	√	
12	Attendance Sheet (Month-wise)	√	
13	E-contents (web links)	√	

TEEL THANKER MAHAVEER UNIVERSITY
COLLEGE OF COMPUTING SCIENCES & INFORMATION TECHNOLOGY
Academic Calendar: Session 2019-20

Activity	Odd Semester	Even Semester
Commencement of Semester	August 01, 2019 (<i>All Programmes</i>) : Two weeks induction programme for new students at the commencement	January 08, 2020 (<i>All Programmes</i>)
Last date of depositing Semester Tuition Fee (without late fee fine)	August 20, 2019	January 20, 2020
Founders Day	September 14, 2019	-
Sports Events	College trials and teams : 17-19 October, 2019	TMU Intercollegiate : February 10 – 21, 2020
CT-I	September 26 - 28, 2019	Feb 27 – 29, 2020
Diwali & Holi Break (<i>for students only</i>)	October 28 – November 02, 2019	March 09 – 14, 2020
CT-II	October 25, November 04 & 05, 2019	April 09 – 11, 2020
Last day of Submission of Examination Form	October 19, 2019	March 21, 2020
Last Teaching Day of Semester	December 04, 2019	May 06, 2020
Preparatory leave & CT - III	December 05-07, 2019	May 07 – 09, 2020
External Examination (Theory & Practical)	December 09 – 27, 2019	May 11 – 30, 2020
Vacation/Education Tour/Training for students/ FDPs	December 28, 2019 – January 07, 2020	June 01 – July 31, 2020

Note:

- 1) Students of all the programmes are required to register themselves on or before the commencement of every semester.
- 2) If last date falls on a non-working day, the immediate next working day shall be treated as last date.
- 3) Dates may change due to unavoidable circumstances.

1. Individual Time Table

21 08	9:00- 9:55	9:55- 10:50	10:50-11:40	11:40- 12:30	12:30- 1:30	1:30- 2:20	2:20- 3:10	3:10- 4:00
M O N		ECS 703			L U N C H			
TU E		ECS 703						
W E D								
TH U			ECS 703	ECS 703				
FRI								
SA T								

2. Syllabus

Course Perspective:

This course provides foundation level training to gain knowledge about various cryptographic methods.

Course Outcomes (COs)

Course Outcomes:	On completion of the course, the students will be :
CO1.	Understanding vulnerability and the weaknesses of unsecured network
CO2.	Understanding information security goals, classical encryption techniques and acquire fundamental knowledge on the concepts of network security.
CO3.	Applying different encryption and decryption techniques to solve problems related to confidentiality and authentication
CO4.	Analyzing the performance of different encryption algorithms for verifying the integrity of varying message sizes.
CO5.	Analyzing different digital signature algorithms to achieve authentication and create secure applications
CO6.	Developing a secure network system using cryptographic utilities and authentication mechanisms.

Course Outline:

Unit I

Network Security: Attacks; Services & Mechanisms; Conventional Encryption: Classical Encryption Techniques, Model and Steganography. **(Lecture 08)**

Unit II

Encryption Schemes: DES: Standard, Strength; Block Cipher Design Principles; Block Cipher Modes of Operation: Triples DES; Placement & Encryption Function: Key Distribution, Random Number Generation, Placement of Encryption Function. **(Lecture 08)**

Unit III

Public-Key Cryptography: Principles; RSA Algorithm; Key Management; Fermat's & Euler's Theorems; Primarily Miller Test; Chinese Remainder Theorem. **(Lecture 08)**

Unit IV

Message Authentication & Hash Functions: Authentication: Requirements, Protocol, Functions, Message Authentication Codes, Hash Functions, Birthday Attacks, Security Of Hash Function & MACS, MD5 Message Digest Algorithm, Secure Hash Algorithm (SHA).

Digital Signatures: Digital Signature Standard (DSS), Proof of Digital Signature Algorithm. **(Lecture 08)**

Unit V

IP Security: Electronic Mail Security, Pretty Good Privacy (PGP), S/MIME, Authentication Header, Encapsulating Security Payloads, Combining Security Associations; Key Management. **Web Security:** Secure Socket Layer & Transport Layer Security, Secure Electronic Transaction (Set)

System Security: Intruders; Viruses; Firewall Design Principles; Trusted Systems. **(Lecture 08)**

Text Book

T1 Stallings, W., *Cryptography and Network Security: Principles and Practice*, Prentice Hall.

T2 Kahate, A., *Cryptography and Network Security*, Tata McGraw Hill.

Reference Book

R1. Johannes, A. B., *Introduction to Cryptography*, Springer.

*Latest editions of all the suggested books are recommended.

3. Handouts

Session Plan:

SN	Topics	Pedagogy	References	Session outcome (Bloom's Taxonomy)	Course Outcome (COs)
1.	UNIT-I Introduction to Network Security: Attacks; Services & Mechanisms;.	Lecture & discussion	R1	L1,L2	CO1
2.	Conventional Encryption: Symmetric encryption, Substitution techniques	Lecture & discussion	R1	L1,L2	CO2
3.	Conventional Encryption : Transposition techniques ,Rotor machines	Lecture & discussion	R1	L1,L2	CO2
4.	Classical Encryption Techniques	Lecture & discussion	R1	L1,L2	CO2
5.	Cryptanalysis and Brute-Force Attack	Lecture & discussion	R1	L1,L2	CO1
6.	Steganography- concept and technique	Lecture discussion, Demonstration	R1	L1,L3	CO1,CO3
7.	Comparison of techniques and Review of Unit I	Lecture & discussion	R1	L1,L2	CO1, CO2
8.	UNIT-II Encryption Schemes: DES: Standard, Strength.	Lecture, discussion	R1	L1,L2	CO1, CO2
9.	Features of DES, and advantages and disadvantages	Lecture, discussion	R1	L1,L2	CO2,CO4
10.	Block Cipher Design Principles with key	Lecture, discussion	R1	L1, L2	CO2
11.	Block Cipher Modes of Operation.	Lecture, discussion	R1	L1,L2	CO2
12.	Triples DES; Placement & Encryption Function	Lecture & discussion	R1	L1,L2	CO2,CO3
13.	Key Distribution, Random Number Generation	Lecture, discussion & Demonstration	R1	L1,L2,L3,L5	CO2,CO3
14.	Placement of Encryption Function	Lecture, discussion	R1	L1,L2,L3,L5	CO2

15.	Encryption Function examples & Review of Unit II	Lecture, discussion & Demonstration	R1	L1,L2	CO2,CO3
16.	Unit-III Public-Key Cryptography: Principles, features, advantages and disadvantages.	Lecture & discussion	R1	L1,L2	CO3
17.	RSA Algorithm, structure and key generation	Lecture & discussion	R1	L1,L2,L4	CO3, CO4
18.	RSA Key Management using Fermat's theorem	Lecture & discussion	R1	L1,L2,L4	CO3, CO4
19.	Examples of Fermat's Theorem	Lecture, discussion & Demonstration	R1	L1,L2,L3,L5	CO3, CO4
20.	RSA Key Management using Euler's Theorem	Lecture & discussion	R1	L1,L2,L4	CO3
21.	Examples of Euler's Theorem	Lecture, discussion & Demonstration	R1	L1,L2,L3,L5	CO3, CO4
22.	Primarily Miller Test	Lecture & discussion	R1	L1,L2,L4	CO3
23.	Chinese Remainder Theorem.	Lecture & discussion	R1	L1,L2,L4	CO3, CO4
24.	Working of RSA with example using various theorems	Lecture, discussion & Demonstration	R1	L1,L2,L3,L5	CO3, CO4
25.	RSA examples & Review of Unit III	Lecture, discussion & Demonstration	R1	L1,L2,L3	CO3,CO4
26.	Unit-IV Message Authentication & Hash Functions: Authentication: Requirements, Protocol, Functions.	Lecture & discussion	R1	L1,L2	CO3, CO4
27.	Message Authentication Codes, Hash Functions	Lecture & discussion	R1	L1,L2,L4	CO3, CO4
28.	Birthday Attacks concept with example	Lecture, discussion & Demonstration	R1	L1,L2,L3	CO3, CO4,CO6
29.	Security Of Hash Function	Lecture &	R1	L1,L2,L4	CO5

	& MACS	discussion			
30.	Example of MD5 message digest	Lecture, discussion & Demonstration	R1	L1,L2,L4	CO5
31.	Secure Hash Algorithm (SHA) core concept , Example of SHA algorithm	Lecture, discussion & Demonstration	R1	L1,L2,L3	CO5,CO6
32.	Digital Signatures: Digital Signature Standard (DSS) Concepts	Lecture, discussion	R1	L1,L2,L4	CO5
33.	Example Proof of Digital Signature Algorithm.	Lecture, discussion & Demonstration	R1	L1,L2,L3,L6	CO5
34.	Protocols ,Function & Review of Unit IV	Lecture, discussion & Demonstration	R1	L1,L2,L3	CO3,CO4
35.	Unit-V IP Security: Electronic Mail Security concepts and protocols,;	Lecture, discussion	R1	L1,L2	CO2
36.	Pretty Good Privacy (PGP) protocols and methods	Lecture, discussion	R1	L1,L2	CO2
37.	S/MIME,Authentication Header,Encapsulating Security Payloads, Combining Security Associations	Lecture, discussion	R1	L1,L2	CO1,CO2
38.	Key Management SSL & Transport Layer Security, Secure Electronic Transaction (Set)	Lecture, discussion & Demonstration	R1	L1,L2,L3	CO1,CO2,CO4
39.	System Security: Intruders; Viruses; Firewall Design Principles	Lecture, discussion & Demonstration	R1	L1,L2,L3	CO1,CO2,CO4, CO6
40.	Trusted Systems & Review of Unit V	Lecture, discussion & Demonstration	R1	L1,L2,L3	CO1,CO2,CO4, CO6

L1= Remembering, L2= Understanding, L3=Applying, L4=Analyzing, L5=Evaluating, L6=Creating
Evaluation Scheme

Attendance	20 %
Assignment	20%
CT1 Exam	20 %
CT2 Exam	20 %
CT3 Exam	20 %

Note: There is a consideration of best two CT's.

4. Class Test (CT) Question Papers

CT-I



Faculty of Engineering

First Internal Class Test

B.Tech. (Computer Science & Engineering)

Year: IV	Academic Year: 2019-20	Semester: VII
Course Code: ECS703	Course Title: CRYPTOGRAPHY AND NETWORK SECURITY	
Duration: 90 minutes		Max. Marks: 30

Attempt all questions.

1.	Answer any five questions	Marks	Unit	CO	BTL
a.	Explain different security services involved in network security.	2	1	CO1	2
b.	Explain: i) Cryptography ii) Cryptanalysis iii) Steganography iv) Encryption.	2	1	CO2	2
c.	Convert this Plaintext (CRYPTOGRAPHY AND NETWORK SECURITY) in to Cipher text using Play fair cipher technique.	2	1	CO1	2
d.	Explain Active and Passive attacks involved in network security.	2	1	CO2	1
e.	Explain the strength analysis of DES.	2	2	CO2	4
f.	Explain Cipher Block Chaining (CBC) mode of operation.	2	1	CO2	2
g.	Explain Block Cipher design principle.	2	2	CO2	2
h.	Explain the working of Triple DES.	2	2	CO2	4
2.	Explain the complete model for network security.	10	2	CO2	1
	OR				
	Explain Fiestel Cipher Encryption & Decryption technique.		1	CO1	4
3.	Explain DES algorithm in detail.	10	2	CO1	2
	OR				
	Explain the complete working of Key Distribution Center (KDC).		2	CO2	2



तीर्थंकर महावीर विश्वविद्यालय
Teerthanker Mahaveer University
 An Ultimate Destination for World Class Education

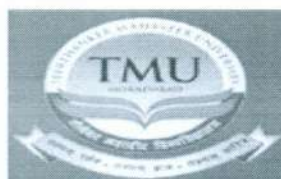
Faculty of Engineering
Second Internal Class Test

B.Tech. (Computer Science & Engineering)

Year: IV	Academic Year: 2019-20	Semester: VII
Course Code: ECS703	Course Title: CRYPTOGRAPHY AND NETWORK SECURITY	
Duration: 90 minutes		Max. Marks: 30

Attempt all questions.

1.	Answer any five questions	Marks	Unit	CO	BTL
a.	Explain the process of placement of encryption function.	2	2	CO2	2
b.	Explain the working of Triple DES.	2	2	CO2	2
c.	Explain Pseudo Random Generator.	2	3	CO3	2
d.	Explain public key cryptosystem.	2	3	CO3	1
e.	Calculate GCD of 161 & 28.	2	3	CO4	5
f.	Explain Euler's & Fermat's theorem with example.	2	3	CO3	2
g.	Explain Euler's Totient function and calculate $\phi(35)$.	2	3	CO3	2
h.	Explain multiplicative inverse of any prime number with example.	2	3	CO3	3
2.	i) Explain Chinese Remainder theorem. ii) Find the value of "x" for: $x=4 \bmod 11$ $x=5 \bmod 7$ $x=6 \bmod 13$	10	3	CO3, CO4	2,5
	OR				
	Explain the complete working of Key Distribution Center (KDC).		3	CO3, CO4	2,4
3.	i) Explain RSA algorithm in detail ii) Evaluate public and private key for these two prime numbers 61 & 53.	10	3	CO3	2,5
	OR				
	i) Explain Miller Rabin Test of primality in detail. ii) Check 61 is prime number or not for $a=2$.		3	CO3	2,5



तीर्थकर महावीर विश्वविद्यालय
Teerthanker Mahaveer University
 An Ultimate Destination for World Class Education

Faculty of Engineering
Third Internal Class Test

B.Tech. (Computer Science & Engineering)

Year: IV	Academic Year: 2019-20	Semester: VII
Course Code: ECS703	Course Title: CRYPTOGRAPHY AND NETWORK SECURITY	
Duration: 90 minutes		Max. Marks: 30

Attempt all questions.

1.	Answer any five questions	Marks	Unit	CO	BTL
a.	Explain Firewall design principles.	2	1	CO5	2
b.	Differentiate between hash function & cryptography.	2	1	CO5	2
c.	Explain Message Authentication Code (MAC).	2	1	CO5	2
d.	Explain security of hash functions.	2	1	CO5	1
e.	Explain the packet format using authentication header.	2	2	CO5	4
f.	Explain Pretty Good Privacy (PGP).	2	1	CO6	2
g.	Explain S/MIME.	2	2	CO6	2
h.	Explain the packet format using encapsulating security payloads.	2	2	CO5	4
2.	Explain the complete working of SHA-512.	10	2	CO5	1
	OR				
	Explain Digital signature standard and also proof of digital signature algorithm.		1	CO5	4
3.	Explore the complete procedure of (SET) Secure Electronic Transaction.	10	2	CO6	2
	OR				
	Explain SSL, TLS and its different protocols.		2	CO6	2

5. Award List (Internal)

Marks out of 30

Sl.N o.	Enrollment No.	Name	ECS703			
			Max. Marks			
			30	30	30	10
			CT1	CT2	CT3	ASN
1	TCA1609001	AARADHYA JAIN	24	21	24	8
2	TCA1609002	AARUSHI JAIN	27	AB	28	8
3	TCA1609003	AMRITA KUMARI	30	AB	18	9
4	TCA1609004	AAYUSH JAIN	28	30	AB	9
5	TCA1609005	AAYUSHI JAIN	30	AB	AB	9
6	TCA1609006	AAYUSHI JAIN	28	AB	30	9
7	TCA1609007	ABDUL KAFEEL	24	25	30	9
8	TCA1609008	ABDUL KAREEM	28	30	AB	8
9	TCA1609009	ABHISHEK JAIN	24	AB	28	9
10	TCA1609010	ABHISHEK JAIN	30	AB	30	8
11	TCA1609013	ADHYATMA JAIN	28	AB	30	9
12	TCA1609016	AKSHAT JAIN	28	AB	25	9
13	TCA1609017	AKSHITA JAIN	25	AB	27	9
14	TCA1609018	AMAN JAIN	27	27	AB	9
15	TCA1609021	AMOL JAIN	27	AB	28	9
16	TCA1609026	ANVITA JAIN	28	AB	28	9
17	TCA1609029	AYUSH JAIN	30	30	AB	9
18	TCA1609030	AYUSH JAIN	28	AB	30	9
19	TCA1609034	AYUSHI JAIN	21	27	30	9
20	TCA1609036	DHEERAJ JAIN	30	AB	30	9
21	TCA1609043	GOUTAM VOHRA	24	AB	28	9
22	TCA1609045	HARSH JAIN	27	AB	28	9

23	TCA1609047	HIMANI JAIN	22	AB	30	9
24	TCA1609049	JATIN JAIN	30	27	AB	9
25	TCA1609051	MAHAK ARA	28	30	AB	9
26	TCA1609058	MD SHAMSHAD	28	AB	28	9
27	TCA1609060	MITANSHU MEHTA	30	AB	28	9
28	TCA1609062	MOHD AAMIR	30	30	AB	9
29	TCA1609065	MOHIT JAIN	30	30	AB	9
30	TCA1609067	NAMAN JAIN	27	AB	27	8
31	TCA1609069	NAMITA PRADHAN	30	28	AB	9
32	TCA1609075	PRAGATI JAIN	25	AB	28	9
33	TCA1609076	PRAGATI JAIN	25	24	AB	9
34	TCA1609079	PRANJAL JAIN	28	28	AB	9
35	TCA1609081	PRIYANSHI JAIN	30	AB	24	9
36	TCA1609082	PRIYANSHU JAIN	24	AB	24	9
37	TCA1609088	RITIK JAIN	21	AB	30	9
38	TCA1609089	RITIKA JAIN	22	27	AB	9
39	TCA1609090	RIYA JAIN	30	AB	30	9
40	TCA1609092	SAHIL JAIN	21	28	AB	9
41	TCA1609095	SAJAL GUPTA	21	AB	28	9

42	TCA1609096	SAMBHAV JAIN	30	AB	28	9
43	TCA1609097	SAMBHAV KUMAR JAIN	28	AB	28	9
44	TCA1609100	SANKALP JAIN	16	25	28	9
45	TCA1609101	SARTHAK JAIN	27	30	AB	9
46	TCA1609102	SAUMYA JAIN	18	30	30	9
47	TCA1609111	SHUBHAM KUMAR JAIN	28	AB	28	9
48	TCA1609113	SIDDHARTH JAIN	19	24	27	9
49	TCA1609115	SINJANEE JAIN	AB	27	28	8
50	TCA1609117	SMRATI JAIN	28	AB	30	9
51	TCA1609118	SOMYA JAIN	27	30	AB	8
52	TCA1609119	SONALI JAIN	28	AB	30	9
53	TCA1609121	SUBHAM JAIN	30	AB	28	9
54	TCA1609125	UPVAN JAIN	27	AB	28	9
55	TCA1609126	URVASHI TYAGI	18	AB	25	8
56	TCA1609127	VAIBHAV JAIN	15	18	AB	9
57	TCA1609129	VIKASH JAIN	28	AB	28	9
58	TCA1609133	YASHI SHARMA	28	AB	28	9
59	TCA1609135	ABHISHEK JAIN	21	30	27	9
60	TCA1609136	VIBHOR JAIN	25	27	27	9

61	TCA1711001	SANSKRITI JAIN	28	AB	25	9
62	TCA1711002	VIJAY KUMAR TOMAR	27	18	28	8
63	TCA1711003	VAIBHAV JAIN	21	AB	22	9
64	TCA1711005	MOHFEEZ AHMAD	27	AB	25	9
65	TCA1711006	SHRUTIKA KHANAK	28	AB	21	9
66	TCA1711010	VAISHALI	30	AB	28	9

6. Rubrics List for Internal Practical Assessment (*Only for Lab Courses*)

NA

7. Identification of Slow Learners

Slow Learners After First CT			Criteria
TCA1609100	SANKALP JAIN		CT1 Marks<60%
TCA1609127	VAIBHAV JAIN		

Slow Learners After Second CT	Criteria
NIL	CT2 Marks<60%

8. Special classes with attendance sheet of slow learners with ATR after each CT

- Topics have been identified for slow learners after CT-1 as given below
 - Security Attacks
 - Stegnography
 - DES Encrytion Scheme
- After special/remedial classes circular , classes had been taken as per below attendance sheet

Classes for Slow Learners After First CT		Date/Month			
Enrollment No.	Name	5/10	10/10	14/10	19/10
TCA1609100	SANKALP JAIN	P	P	P	P
TCA1609127	VAIBHAV JAIN	P	p		p

9. Assignments



तीर्थकर महावीर विश्वविद्यालय
Teerthanker Mahaveer University
An Ultimate Destination for World Class Education

Faculty of Engineering **Assignment**

Program: BTECH (CSE)

Course Name: CNS

Semester: 7th

Total Marks: 10

Branch/Section:

Course Code: ECS703

Faculty: Mr. Kamal Kumar Gola

Submission Date: 10/12/2019

Note:

- All questions are mendetory.
- Each question carry equal marks
- 1 Marks Each

1. In symmetric-key cryptography, the key locks and unlocks the box is

- A. same
- B. shared
- C. private
- D. public

2. The keys used in cryptography are

- A. secret key
- B. private key
- C. public key
- D. all of them

3. Cryptography, a word with Greek origins, means

- A. corrupting data
- B. secret writing
- C. open writing
- D. closed writing

4. A transposition cipher reorders (permutes) symbols in a

- A. block of packets
- B. block of slots
- C. block of signals
- D. block of symbols

5. The process of transforming plain text into unreadable text.

- A. decryption
- B. encryption
- C. network security
- D. information hiding

6. A process of making the encrypted text readable again.

- A. decryption
- B. encryption
- C. network security
- D. information hiding

7. _____ are used in denial-of-service (DOS) attacks, usually against targeted websites.

- A Worm
- B Virus
- C Zombie
- D Trojan horse

8. Cryptanalysis is used

- A. to find some insecurity in a cryptographic scheme
- B. to increase the speed
- C. to encrypt the data
- D. to make new ciphers

9. On comparing AES with DES, which of the following functions from DES does not have an equivalent AES function?

- A. f function
- B. permutation p
- C. swapping of halves
- D. XOR of subkey with function f

10. The message in SHA-512 is padded so that its length is

- a) $832 \bmod 1024$
- b) $768 \bmod 1024$
- c) $960 \bmod 1024$
- d) $896 \bmod 1024$



तीर्थकर महावीर विश्वविद्यालय
Teerthanker Mahaveer University
An Ultimate Destination for World Class Education

FACULTY OF ENGINEERING

Year: 4th	Academic Year: 2019-20	Semester: 7 th
Course Code:ECS703 (Unit-I)	Course Name: Cryptography and Network Security	
Duration:		Max. Marks:

Short answer type questions. (2 X 5=10 Marks)

- (a) Define protocol.
- (b) What is Network Security.
- (c) Define network attacks with example.
- (d) What is Cryptography
- (e) List different types of network security tools?
- (f) What is Stegnography.

Long Questions (10 Marks each)

2. (a) Differentiate passive attack from active attack with example.

OR

- (a) Explain Security Mechanism with 3 aspects of security.

3. (a) Explain the process of Stegnography with suitable example.

OR

- (b) Explain Security Mechanism with 3 aspects of security.

Year: 4th	Academic Year: 2019-20	Semester: 7 th
Course Code:ECS703 (Unit-II)	Course Name: Cryptography and Network Security	
Duration:		Max. Marks:

Short answer type questions. (2 X 5=10 Marks)

- (a) Explain Encryption.
- (b) What is plaintext or cleartext.
- (c) Discuss difference between Encryption and Decryption.
- (d) What is ciphertext.
- (e) What is Block-Cipher?
- (f) List the different modes of operation in DES?

Long Questions (10 Marks each)

2. (a) Difference between private key and public key.

OR

- (a) Explain DES in brief with suitable example.

3. (a) Explain the concept of Random number generation in Encryption technique.

OR

- (b) Brief the strength of triple DES.

Year: 4th	Academic Year: 2019-20	Semester: 7 th
Course Code:ECS703 (Unit-III)	Course Name: Cryptography and Network Security	
Duration:		Max. Marks:

Short answer type questions. (2 X 5=10 Marks)

- (a) State the Fermat's Theorem
- (b) Mention any one technique of attacking RSA.
- (c) What is masquerade.
- (d) State the Euler's Theorem.
- (e) Find gcd (1970, 1066) using Euclid's algorithm?
- (f) List the properties of Euler's phi

Long Questions (10 Marks each)

2. (a) Perform encryption and decryption using RSA Alg. For the following.
 $P=17$; $q=11$; $e=7$; $M=88$.

OR

Discuss Chinese Remainder Theorem.

3. (a) Explain RSA algorithm in detail with an example.

OR

- (b) Find X for the given set of congruent equations using CRT

$$X \equiv 1 \pmod{5} \quad (b) \quad X \equiv 2 \pmod{3}$$

$$X \equiv 2 \pmod{7} \quad X \equiv 3 \pmod{5}$$

$$X \equiv 3 \pmod{9} \quad X \equiv 2 \pmod{7}$$

$$X \equiv 4 \pmod{11}$$

Year: 4th	Academic Year: 2019-20	Semester: 7 th
Course Code:ECS703 (Unit-IV)	Course Name: Cryptography and Network Security	
Duration:		Max. Marks:

Short answer type questions. (2 X 5=10 Marks)

- (a) What are the properties a digital signature should have?
- (b) Mention the fundamental idea of HMAC.
- (c) Why is SHA more secure than MD5?
- (d) List any three hash algorithm.
- (e) Distinguish between direct and arbitrated digital signature?
- (f) What is Birthday attack?

Long Questions (10 Marks each)

2. (a) Describe the MD5 message digest algorithm with necessary block diagrams.

OR

Discuss about the objectives of HMAC and its security features.

3. (a) Explain in detail Hash Functions.

OR

- (b) Write and explain the digital signature algorithm.

Year: 4th	Academic Year: 2019-20	Semester: 7 th
Course Code:ECS703 (Unit-V)	Course Name: Cryptography and Network Security	
Duration:		Max. Marks:

Short answer type questions. (2 X 5=10 Marks)

- (a) What are the services provided by PGP services?
- (b) What is X.509 Standard?.
- (c) What is SSH?
- (d) What is a Firewall?
- (e) What is the main difference between SSL and TLS?
- (f) What do you mean by Trojan horse?

Long Questions (10 Marks each)

2. (a) What are the functions provided by S/MIME? Explain in detail.

OR

Discuss about the X.509 framework for the provision of Authentication Service.

3. (a) Explain the operation of PGP with its advantages .

OR

- (b) Define virus. Specify the types of viruses in detail.

Attendance for the month of August 2019

Page 23 of 39

23	TCA1609047	HIMANI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
24	TCA1609049	JATIN JAIN	p	p	p	p	p			p	p	p	p	p	p	p
25	TCA1609051	MAHAK ARA	p	p	p	p	p	p	p	p	p	p	p	p	p	p
26	TCA1609058	MD SHAMSHAD	p	p	p	p	p	p	p		p	p	p	p	p	p
27	TCA1609060	MITANSHU MEHTA	p	p	p	p	p	p	p	p	p	p	p	p	p	p
28	TCA1609062	MOHD AAMIR	p	p	p	p	p	p	p	p	p	p	p	p	p	p
29	TCA1609065	MOHIT JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
30	TCA1609067	NAMAN JAIN	p	p	p	p	p	p		p		p	p	p	p	p
31	TCA1609069	NAMITA PRADHAN	p	p	p		p	p	p	p	p	p	p	p	p	p
32	TCA1609075	PRAGATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
33	TCA1609076	PRAGATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
34	TCA1609079	PRANJAL JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
35	TCA1609081	PRIYANSHI JAIN		p	p		p	p	p	p	p	p	p	p	p	p
36	TCA1609082	PRIYANSHU JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
37	TCA1609088	RITIK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
38	TCA1609089	RITIKA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
39	TCA1609090	RIYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
40	TCA1609092	SAHIL JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
41	TCA1609095	SAJAL GUPTA	p	p	p	p	p	p	p	p	p	p	p	p	p	p
42	TCA1609096	SAMBHAV JAIN	p		p	p	p	p	p	p	p	p	p	p	p	p

43	TCA1609097	SAMBHAV KUMAR JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p
44	TCA1609100	SANKALP JAIN	p	p	p	p				p						
45	TCA1609101	SARTHAK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
46	TCA1609102	SAUMYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
47	TCA1609111	SHUBHAM KUMAR JAIN	p	p	p	p		p	p	p	p	p	p	p	p	p
48	TCA1609113	SIDDHARTH JAIN	p	p	p	p		p	p		p		p	p	p	p
49	TCA1609115	SINJANEE JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
50	TCA1609117	SMRATI JAIN	p	p	p	p	p	p	p	p	p	p		p		
51	TCA1609118	SOMYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
52	TCA1609119	SONALI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
53	TCA1609121	SUBHAM JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
54	TCA1609125	UPVAN JAIN	p	p	p	p	p	p	p			p	p	p	p	p
55	TCA1609126	URVASHI TYAGI	p	p	p	p	p	p		p	p		p	p	p	p
56	TCA1609127	VAIBHAV JAIN	p	p	p	p	p	p	p	p	p	p		p	p	p
57	TCA1609129	VIKASH JAIN	p	p	p	p	p	p		p	p	p	p	p		p
58	TCA1609133	YASHI SHARMA		p		p	p	p	p	p	p	p	p	p	p	
59	TCA1609135	ABHISHEK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	
60	TCA1609136	VIBHOR JAIN	p	p	p	p	p	p		p	p	p	p	p		
61	TCA1711001	SANSKRITI JAIN		p	p	p	p	p	p	p	p	p	p	p	p	p

62	TCA1711002	VIJAY KUMAR TOMAR		p	p	p	p	p		p	p	p	p	p	p
63	TCA1711003	VAIBHAV JAIN	p							p		p	p	p	p
64	TCA1711005	MOHFEEZ AHMAD	p	p		p	p			p	p	p	p	p	p
65	TCA1711006	SHRUTIKA KHANAK	p	p	p		p	p		p	p	p	p	p	p
66	TCA1711010	VAISHALI	p	p	p	p			p	p	p	p	p	p	p

Attendance for the month of September 2019

Sl. No.	Enrollment No.	Name													
			2/9	3/9	5/9	9/9	1/0	1/2	1/2	1/6	1/7	1/9	1/9	2/3	2/4
1	TCA1609001	AARADHYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
2	TCA1609002	AARUSHI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
3	TCA1609003	AMRITA KUMARI	p	p	p	p	p		p	p	p	p	p	p	p
4	TCA1609004	AAYUSH JAIN	p	p	p	p		p	p	p				p	p
5	TCA1609005	AAYUSHI JAIN	p	p	p	p	p		p	p			p	p	
6	TCA1609006	AAYUSHI JAIN	p	p	p				p	p	p	p	p	p	p
7	TCA1609007	ABDUL KAFEEL	p	p		p	p	p	p	p		p	p	p	p
8	TCA1609008	ABDUL KAREEM	p	p	p	p	p	p	p	p	p	p	p	p	p
9	TCA1609009	ABHISHEK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
10	TCA1609010	ABHISHEK JAIN	p	p	p	p	p		p	p	p	p	p	p	p
11	TCA1609013	ADHYATMA JAIN				p	p	p	p	p	p	p	p	p	p
12	TCA1609016	AKSHAT JAIN		p	p	p	p	p	p	p	p		p	p	p
13	TCA1609017	AKSHITA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
14	TCA1609018	AMAN JAIN	p	p	p	p	p	p	p	p	p		p	p	p
15	TCA1609021	AMOL JAIN	p	p		p	p	p	p	p	p	p	p	p	p
16	TCA1609026	ANVITA JAIN	p	p	p	p	p	p	p	p	p		p	p	p
17	TCA1609029	AYUSH JAIN	p	p	p	p	p	p		p	p	p	p	p	p

18	TCA1609030	AYUSH JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
19	TCA1609034	AYUSHI JAIN	p	p		p		p	p	p	p	p	p	p	p	p	p
20	TCA1609036	DHEERAJ JAIN	p			p	p	p	p	p	p	p	p	p	p		p
21	TCA1609043	GOUTAM VOHRA	p	p		p	p	p	p			p	p	p	p	p	p
22	TCA1609045	HARSH JAIN	p	p			p	p	p			p	p	p	p	p	p
23	TCA1609047	HIMANI JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p	p
24	TCA1609049	JATIN JAIN	p	p		p	p	p					p	p	p	p	p
25	TCA1609051	MAHAK ARA	p	p		p	p	p	p	p	p	p	p	p	p	p	p
26	TCA1609058	MD SHAMSHAD	p	p		p	p	p	p	p	p			p	p	p	p
27	TCA1609060	MITANSHU MEHTA	p	p		p	p	p	p	p	p	p	p	p	p	p	p
28	TCA1609062	MOHD AAMIR	p	p		p	p	p	p	p	p	p	p	p	p	p	p
29	TCA1609065	MOHIT JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p	p
30	TCA1609067	NAMAN JAIN	p	p		p	p	p	p	p			p	p		p	p
31	TCA1609069	NAMITA PRADHAN	p	p		p		p	p	p	p	p	p	p	p	p	p
32	TCA1609075	PRAGATI JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p	p
33	TCA1609076	PRAGATI JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p	p
34	TCA1609079	PRANJAL JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p	p
35	TCA1609081	PRIYANSHI JAIN				p	p		p	p	p	p	p	p	p	p	p
36	TCA1609082	PRIYANSHU JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p	p
37	TCA1609088	RITIK JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p	p

38	TCA1609089	RITIKA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
39	TCA1609090	RIYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
40	TCA1609092	SAHIL JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
41	TCA1609095	SAJAL GUPTA	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
42	TCA1609096	SAMBHAV JAIN	p		p	p	p	p	p	p	p	p	p	p	p	p	
43	TCA1609097	SAMBHAV KUMAR JAIN	p	p		p	p	p	p	p	p	p	p	p	p	p	p
44	TCA1609100	SANKALP JAIN	p	p	p		p		p			p					
45	TCA1609101	SARTHAK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
46	TCA1609102	SAUMYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
47	TCA1609111	SHUBHAM KUMAR JAIN	p	p	p	p		p	p	p	p	p	p	p	p	p	p
48	TCA1609113	SIDDHARTH JAIN	p	p	p	p		p	p	p			p		p	p	p
49	TCA1609115	SINJANEE JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
50	TCA1609117	SMRATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p		
51	TCA1609118	SOMYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
52	TCA1609119	SONALI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
53	TCA1609121	SUBHAM JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
54	TCA1609125	UPVAN JAIN	p	p	p	p	p	p	p	p				p	p	p	
55	TCA1609126	URVASHI TYAGI	p	p	p	p	p	p		p	p	p		p	p		
56	TCA1609127	VAIBHAV JAIN	p	p	p	p	p	p	p	p	p	p	p	p			p
57	TCA1609129	VIKASH JAIN	p	p	p	p	p	p		p	p	p	p	p	p	p	

58	TCA1609133	YASHI SHARMA		p		p	p	p	p	p	p	p	p	p	p	p	p	p	p
59	TCA1609135	ABHISHEK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
60	TCA1609136	VIBHOR JAIN	p	p	p	p	p	p	p		p	p	p	p	p				
61	TCA1711001	SANSKRITI JAIN		p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
62	TCA1711002	VIJAY KUMAR TOMAR		p	p	p	p	p	p		p	p	p	p	p	p			
63	TCA1711003	VAIBHAV JAIN	p								p				p		p		
64	TCA1711005	MOHFEEZ AHMAD	p	p		p	p		p	p	p	p	p	p	p	p	p	p	p
65	TCA1711006	SHRUTIKA KHANAK	p	p	p		p	p	p	p	p	p	p	p	p	p	p	p	p
66	TCA1711010	VAISHALI	p	p	p	p		p	p	p	p		p	p	p	p			

Attendance for the month of October 2019

Sl.N o.	Enrollment No.	Name																	
			1/10	3/10	3	7	8	1	1	1	1	2	2	2					
					/	/	/	0	0	4	5	1	2	4					
					1	1	1	/	/	/	/	/	/	/					
					0	0	0	1	1	1	1	1	1	1					
								0	0	0	0	0	0	0					
1	TCA1609001	AARADHYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
2	TCA1609002	AARUSHI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
3	TCA1609003	AMRITA KUMARI	p	p	p	p	p	p		p	p	p	p	p					
4	TCA1609004	AAYUSH JAIN	p	p	p	p		p	p	p									
5	TCA1609005	AAYUSHI JAIN	p	p	p	p	p		p	p				p	p				
6	TCA1609006	AAYUSHI JAIN	p	p	p				p	p	p	p	p	p	p				
7	TCA1609007	ABDUL KAFEEL	p	p		p	p	p	p	p		p	p	p					
8	TCA1609008	ABDUL KAREEM	p	p	p	p	p	p	p	p	p	p	p	p	p				
9	TCA1609009	ABHISHEK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p				
10	TCA1609010	ABHISHEK JAIN	p	p	p	p	p	p		p	p	p	p	p					

11	TCA1609013	ADHYATMA JAIN				p	p	p	p	p	p	p	p	p	p
12	TCA1609016	AKSHAT JAIN		p	p	p	p	p	p	p	p	p	p		p
13	TCA1609017	AKSHITA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
14	TCA1609018	AMAN JAIN	p	p	p	p	p	p	p	p	p	p			p
15	TCA1609021	AMOL JAIN	p	p		p	p	p	p	p	p	p	p	p	p
16	TCA1609026	ANVITA JAIN	p	p	p	p	p	p	p	p	p	p			p
17	TCA1609029	AYUSH JAIN	p	p	p	p	p	p		p	p	p	p	p	p
18	TCA1609030	AYUSH JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
19	TCA1609034	AYUSHI JAIN	p	p		p		p	p	p	p	p	p	p	p
20	TCA1609036	DHEERAJ JAIN	p			p	p	p	p	p	p	p	p	p	p
21	TCA1609043	GOUTAM VOHRA	p	p	p	p	p	p	p		p	p	p	p	p
22	TCA1609045	HARSH JAIN	p	p	p	p	p	p	p		p	p	p	p	p
23	TCA1609047	HIMANI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
24	TCA1609049	JATIN JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
25	TCA1609051	MAHAK ARA	p	p	p	p	p	p	p	p	p	p	p	p	p
26	TCA1609058	MD SHAMSHAD	p	p	p	p	p	p	p	p	p		p	p	
27	TCA1609060	MITANSHU MEHTA	p	p	p	p	p	p	p	p	p	p	p	p	p
28	TCA1609062	MOHD AAMIR	p	p	p	p	p	p	p	p	p	p	p	p	p
29	TCA1609065	MOHIT JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
30	TCA1609067	NAMAN JAIN	p	p	p	p	p	p		p	p				p
31	TCA1609069	NAMITA PRADHAN	p	p	p		p	p	p	p	p	p	p	p	p

32	TCA1609075	PRAGATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
33	TCA1609076	PRAGATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
34	TCA1609079	PRANJAL JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
35	TCA1609081	PRIYANSHI JAIN		p	p		p	p	p	p	p	p	p	p	p
36	TCA1609082	PRIYANSHU JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
37	TCA1609088	RITIK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
38	TCA1609089	RITIKA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
39	TCA1609090	RIYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
40	TCA1609092	SAHIL JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
41	TCA1609095	SAJAL GUPTA	p	p	p	p	p	p	p	p	p	p	p	p	p
42	TCA1609096	SAMBHAV JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
43	TCA1609097	SAMBHAV KUMAR JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
44	TCA1609100	SANKALP JAIN	p	p	p	p	p	p	p	p	p		p		
45	TCA1609101	SARTHAK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
46	TCA1609102	SAUMYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
47	TCA1609111	SHUBHAM KUMAR JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
48	TCA1609113	SIDDHARTH JAIN	p	p	p	p		p	p	p			p		
49	TCA1609115	SINJANEE JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
50	TCA1609117	SMRATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p
51	TCA1609118	SOMYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p

52	TCA1609119	SONALI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
53	TCA1609121	SUBHAM JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
54	TCA1609125	UPVAN JAIN	p	p	p	p	p	p	p	p								p	
55	TCA1609126	URVASHI TYAGI	p	p	p	p	p	p	p						p	p	p		
56	TCA1609127	VAIBHAV JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
57	TCA1609129	VIKASH JAIN	p	p	p	p	p	p	p						p	p	p	p	p
58	TCA1609133	YASHI SHARMA		p		p	p	p	p	p	p	p	p	p	p	p	p	p	p
59	TCA1609135	ABHISHEK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
60	TCA1609136	VIBHOR JAIN	p	p	p	p	p	p	p						p	p	p	p	p
61	TCA1711001	SANSKRITI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
62	TCA1711002	VIJAY KUMAR TOMAR		p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
63	TCA1711003	VAIBHAV JAIN	p		p		p	p	p						p		p	p	
64	TCA1711005	MOHFEEZ AHMAD	p	p		p	p			p	p	p	p	p	p	p	p	p	
65	TCA1711006	SHRUTIKA KHANAK	p	p	p		p	p	p	p	p	p	p	p	p	p	p	p	p
66	TCA1711010	VAISHALI	p	p	p	p				p	p	p	p	p	p	p	p	p	p

Attendance for the month of November 2019

Sl. No.	Enrollment No.	Name																
			7/11	7/11	11/11	12/11	14/11	1/4	1/8	1/9	2/1	2/1	2/5	2/6	2/8	2/8		
								1/4	1/8	1/9	2/1	2/1	2/5	2/6	2/8	2/8		
								1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1		
								1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1		
1	TCA1609001	AARADHYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p		
2	TCA1609002	AARUSHI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p		
3	TCA1609003	AMRITA KUMARI	p	p	p	p	p	p	p	p	p	p	p	p	p	p		
4	TCA1609004	AAAYUSH JAIN	p	p	p	p		p	p	p					p	p		
5	TCA1609005	AAAYUSHI JAIN	p	p	p	p	p		p	p			p	p	p			
6	TCA1609006	AAAYUSHI JAIN	p	p	p				p	p	p	p	p	p	p			
7	TCA1609007	ABDUL KAFEEL	p	p		p	p	p	p	p		p	p	p	p	p		
8	TCA1609008	ABDUL KAREEM	p	p	p	p	p	p	p	p	p	p	p	p	p	p		
9	TCA1609009	ABHISHEK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p		
10	TCA1609010	ABHISHEK JAIN	p	p	p	p	p	p		p	p	p	p	p	p	p		
11	TCA1609013	ADHYATMA JAIN				p	p	p	p	p	p	p	p	p				
12	TCA1609016	AKSHAT JAIN		p	p	p	p	p	p	p	p	p		p	p	p		
13	TCA1609017	AKSHITA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p		
14	TCA1609018	AMAN JAIN	p	p	p	p	p	p	p	p	p	p		p	p	p		
15	TCA1609021	AMOL JAIN	p	p		p	p	p	p	p	p	p	p	p		p		
16	TCA1609026	ANVITA JAIN	p	p	p	p	p	p	p	p	p	p		p	p	p		
17	TCA1609029	AYUSH JAIN	p	p	p	p	p	p		p	p	p	p	p	p	p		
18	TCA1609030	AYUSH JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p		
19	TCA1609034	AYUSHI JAIN	p	p		p		p	p	p	p	p	p	p	p	p		
20	TCA1609036	DHEERAJ JAIN	p		p	p	p	p	p	p	p	p	p	p	p			
21	TCA1609043	GOUTAM VOHRA	p	p	p	p	p	p	p		p	p	p	p	p	p		
22	TCA1609045	HARSH JAIN	p	p	p	p	p	p	p		p	p	p	p	p	p		
23	TCA1609047	HIMANI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p		

24	TCA1609049	JATIN JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
25	TCA1609051	MAHAK ARA	p	p	p	p	p	p	p	p	p	p	p	p	p	p
26	TCA1609058	MD SHAMSHAD	p	p	p	p	p	p	p	p	p		p	p	p	
27	TCA1609060	MITANSHU MEHTA	p	p	p	p	p	p	p	p	p	p	p	p	p	p
28	TCA1609062	MOHD AAMIR	p	p	p	p	p	p	p	p	p	p	p	p	p	
29	TCA1609065	MOHIT JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
30	TCA1609067	NAMAN JAIN	p	p	p	p	p	p	p		p	p		p	p	
31	TCA1609069	NAMITA PRADHAN	p	p	p		p	p	p	p	p	p	p	p	p	
32	TCA1609075	PRAGATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	
33	TCA1609076	PRAGATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	
34	TCA1609079	PRANJAL JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	
35	TCA1609081	PRIYANSHI JAIN		p	p		p	p	p	p	p	p	p	p	p	p
36	TCA1609082	PRIYANSHU JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
37	TCA1609088	RITIK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
38	TCA1609089	RITIKA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
39	TCA1609090	RIYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
40	TCA1609092	SAHIL JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
41	TCA1609095	SAJAL GUPTA	p	p	p	p	p	p	p	p	p	p	p	p	p	p
42	TCA1609096	SAMBHAV JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
43	TCA1609097	SAMBHAV KUMAR JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
44	TCA1609100	SANKALP JAIN	p	p	p	p	p	p	p	p	p		p		p	p
45	TCA1609101	SARTHAK JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
46	TCA1609102	SAUMYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p
47	TCA1609111	SHUBHAM KUMAR JAIN	p	p	p	p	p	p	p	p	p	p	p	p		
48	TCA1609113	SIDDHARTH JAIN	p	p	p	p		p	p	p			p		p	p

49	TCA1609115	SINJANEE JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
50	TCA1609117	SMRATI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
51	TCA1609118	SOMYA JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
52	TCA1609119	SONALI JAIN	p	p	p	p	p	p	p	p	p	p	p	p			
53	TCA1609121	SUBHAM JAIN	p	p	p	p	p	p	p	p	p	p	p	p			
54	TCA1609125	UPVAN JAIN	p	p	p	p	p	p	p	p				p			
55	TCA1609126	URVASHI TYAGI	p	p	p	p	p	p	p		p	p	p		p	p	
56	TCA1609127	VAIBHAV JAIN	p	p	p	p	p	p	p	p	p	p	p	p			
57	TCA1609129	VIKASH JAIN	p	p	p	p	p	p	p		p	p	p	p	p	p	
58	TCA1609133	YASHI SHARMA		p		p	p	p	p	p	p	p	p	p	p	p	
59	TCA1609135	ABHISHEK JAIN	p	p	p	p	p	p	p	p	p	p	p	p			
60	TCA1609136	VIBHOR JAIN	p	p	p	p	p	p	p		p	p	p	p	p	p	
61	TCA1711001	SANSKRITI JAIN	p	p	p	p	p	p	p	p	p	p	p	p	p	p	
62	TCA1711002	VIJAY KUMAR TOMAR		p	p	p	p	p	p	p	p	p	p	p	p	p	
63	TCA1711003	VAIBHAV JAIN	p		p		p	p	p		p		p	p			
64	TCA1711005	MOHFEEZ AHMAD	p	p		p	p		p	p	p	p	p	p	p	p	
65	TCA1711006	SHRUTIKA KHANAK	p	p	p		p	p	p	p	p	p	p	p	p	p	
66	TCA1711010	VAISHALI	p	p	p	p		p	p	p	p	p	p	p	p	p	

Attendance for the month of December 2019

Sl.No.	Enrollment No.	Name		
			2/12	3/12
1	TCA1609001	AARADHYA JAIN	p	p
2	TCA1609002	AARUSHI JAIN	p	p
3	TCA1609003	AMRITA KUMARI	p	p
4	TCA1609004	AAYUSH JAIN	p	p

5	TCA1609005	AAYUSHI JAIN	p	p
6	TCA1609006	AAYUSHI JAIN	p	p
7	TCA1609007	ABDUL KAFEEL	p	p
8	TCA1609008	ABDUL KAREEM	p	p
9	TCA1609009	ABHISHEK JAIN	p	p
10	TCA1609010	ABHISHEK JAIN	p	p
11	TCA1609013	ADHYATMA JAIN		
12	TCA1609016	AKSHAT JAIN		p
13	TCA1609017	AKSHITA JAIN	p	p
14	TCA1609018	AMAN JAIN	p	p
15	TCA1609021	AMOL JAIN	p	p
16	TCA1609026	ANVITA JAIN	p	p
17	TCA1609029	AYUSH JAIN	p	p
18	TCA1609030	AYUSH JAIN	p	p
19	TCA1609034	AYUSHI JAIN	p	p
20	TCA1609036	DHEERAJ JAIN	p	
21	TCA1609043	GOUTAM VOHRA	p	p
22	TCA1609045	HARSH JAIN	p	p
23	TCA1609047	HIMANI JAIN	p	p
24	TCA1609049	JATIN JAIN	p	p
25	TCA1609051	MAHAK ARA	p	p
26	TCA1609058	MD SHAMSHAD	p	p
27	TCA1609060	MITANSHU MEHTA	p	p
28	TCA1609062	MOHD AAMIR	p	p
29	TCA1609065	MOHIT JAIN	p	p

30	TCA1609067	NAMAN JAIN	p	p
31	TCA1609069	NAMITA PRADHAN	p	p
32	TCA1609075	PRAGATI JAIN	p	p
33	TCA1609076	PRAGATI JAIN	p	p
34	TCA1609079	PRANJAL JAIN	p	p
35	TCA1609081	PRIYANSHI JAIN		p
36	TCA1609082	PRIYANSHU JAIN	p	p
37	TCA1609088	RITIK JAIN	p	p
38	TCA1609089	RITIKA JAIN	p	p
39	TCA1609090	RIYA JAIN	p	p
40	TCA1609092	SAHIL JAIN	p	p
41	TCA1609095	SAJAL GUPTA	p	p
42	TCA1609096	SAMBHAV JAIN	p	p
43	TCA1609097	SAMBHAV KUMAR JAIN	p	p
44	TCA1609100	SANKALP JAIN	p	p
45	TCA1609101	SARTHAK JAIN	p	p
46	TCA1609102	SAUMYA JAIN	p	p
47	TCA1609111	SHUBHAM KUMAR JAIN	p	p
48	TCA1609113	SIDDHARTH JAIN	p	p
49	TCA1609115	SINJANEE JAIN	p	p

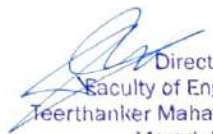
50	TCA1609117	SMRATI JAIN	p	p
51	TCA1609118	SOMYA JAIN	p	p
52	TCA1609119	SONALI JAIN	p	p
53	TCA1609121	SUBHAM JAIN	p	p
54	TCA1609125	UPVAN JAIN	p	p
55	TCA1609126	URVASHI TYAGI	p	p
56	TCA1609127	VAIBHAV JAIN	p	p*
57	TCA1609129	VIKASH JAIN	p	p
58	TCA1609133	YASHI SHARMA		p
59	TCA1609135	ABHISHEK JAIN	p	p
60	TCA1609136	VIBHOR JAIN	p	p
61	TCA1711001	SANSKRITI JAIN	p	p
62	TCA1711002	VIJAY KUMAR TOMAR		p
63	TCA1711003	VAIBHAV JAIN	p	
64	TCA1711005	MOHFEEZ AHMAD	p	p
65	TCA1711006	SHRUTIKA KHANAK	p	p
66	TCA1711010	VAISHALI	p	p

12.E-contents (web links)

E-contents links including:

- <https://www.tmu.ac.in/college-of-computing-sciences-and-it/study-material>Personal google website link
- <https://drive.google.com/drive/folders/1lisgyopT5PkWPzMXU9FzUdoGYrh0iM3j?usp=sharing>
- <https://www.tutorialspoint.com/cryptography/>
- <https://www.geeksforgeeks.org/cryptography-and-its-types/>
- <https://www.tutorialsduniya.com/notes/cryptography-network-security-notes/>
- https://www.tutorialspoint.com/cryptography/cryptography_digital_signatures.htm
- <https://www.geeksforgeeks.org/digital-signatures-certificates/>

Sl.N o.	Enrollment No.	Name	ECS703																							
			Max. Marks																		Total					
			10	10	10	10	40	6	8	6	8	12	60	12	12	12	12	12	12	18	20	18	20	24		
			CT1	CT2	CT3	Asn	I	CO1	CO2	CO3	CO4	CO5	E	CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5			
1	TCA1609001	SARADHYA JAIN	7.67	7.00	7.67	8.00		4.7	6.2	4.4	5.8	9.3	43	8.6	8.6	8.6	8.6	8.6	13	15	13	14	18			
2	TCA1609002	AARUSHI JAIN	8.67	A	9.33	8.00		5.1	6.8	1.6	1.6	10.9	43	8.6	8.6	8.6	8.6	8.6	14	15	10	10	20			
3	TCA1609003	AMRITA KUMARI	9.67	A	6.00	9.00		5.7	7.6	1.8	1.8	7.8	41	8.2	8.2	8.2	8.2	8.2	14	16	10	10	11			
4	TCA1609004	AAYUSHI JAIN	9.33	9.67	A	9.00		5.5	7.4	5.7	7.6	1.8	47	9.4	9.4	9.4	9.4	9.4	15	17	15	17	16			
5	TCA1609005	AAYUSHI JAIN	9.67	A	A	9.00		5.7	7.6	1.8	1.8	1.8	37	7.4	7.4	7.4	7.4	7.4	13	15	9	9	9			
6	TCA1609006	AAYUSHI JAIN	9.33	A	10.00	9.00		5.5	7.4	1.8	1.8	11.8	40	8	8	8	8	8	14	15	10	10	20			
7	TCA1609007	ABDUL KAFEE	7.67	8.33	9.67	9.00		4.9	6.4	5.1	6.8	11.5	33	6.6	6.6	6.6	6.6	6.6	11	13	12	13	18			
8	TCA1609008	ABDUL KAREEM	9.33	9.67	A	9.00		5.3	7.2	5.5	7.4	1.6	40	8	8	8	8	8	13	15	13	15	10			
9	TCA1609009	ABHISHEK JAIN	8.00	A	9.33	9.00		5.0	6.6	1.8	1.8	11.1	30	6	6	6	6	6	11	13	8	8	17			
10	TCA1609010	ABHISHEK JAIN	9.67	A	9.67	8.00		5.5	7.4	1.6	1.6	11.3	48	9.6	9.6	9.6	9.6	9.6	15	17	11	11	21			
11	TCA1609013	ADHYATMA JAIN	9.33	A	9.67	9.00		5.5	7.4	1.8	1.8	11.5	38	7.6	7.6	7.6	7.6	7.6	13	15	9	9	19			
12	TCA1609016	AKSHAT JAIN	9.33	A	8.33	9.00		5.5	7.4	1.8	1.8	10.1	45	9	9	9	9	9	15	16	11	11	19			
13	TCA1609017	AKSHITA JAIN	8.33	A	9.00	9.00		5.1	6.8	1.8	1.8	10.8	47	9.4	9.4	9.4	9.4	9.4	15	16	11	11	20			
14	TCA1609018	AMAN JAIN	8.67	8.67	A	9.00		5.3	7.0	5.3	7.0	1.8	39	7.8	7.8	7.8	7.8	7.8	13	15	13	15	10			
15	TCA1609021	AMOL JAIN	9.00	A	9.33	9.00		5.4	7.2	1.8	1.8	11.1	39	7.8	7.8	7.8	7.8	7.8	13	15	10	10	19			
16	TCA1609026	ANVITA JAIN	9.33	A	9.33	9.00		5.5	7.4	1.8	1.8	11.1	44	8.8	8.8	8.8	8.8	8.8	14	16	11	11	20			
17	TCA1609029	AYUSH JAIN	10.00	10.00	A	9.00		5.8	7.8	5.8	7.8	1.8	43	8.6	8.6	8.6	8.6	8.6	14	16	14	16	10			
18	TCA1609030	AYUSH JAIN	9.33	A	9.67	9.00		5.5	7.4	1.8	1.8	11.5	49	9.8	9.8	9.8	9.8	9.8	15	17	12	12	21			
19	TCA1609034	AYUSHI JAIN	8.67	9.00	9.67	9.00		4.5	5.8	5.4	7.2	11.5	49	9.8	9.8	9.8	9.8	9.8	14	16	15	17	21			
20	TCA1609036	DHEERAJ JAIN	10.00	A	9.67	9.00		5.8	7.8	1.8	1.8	11.5	48	9.6	9.6	9.6	9.6	9.6	15	17	11	11	21			
21	TCA1609043	GOUTAM VOHRA	8.00	A	9.33	9.00		5.0	6.6	1.8	1.8	11.1	46	9.2	9.2	9.2	9.2	9.2	14	16	11	11	20			
22	TCA1609045	HARSH JAIN	8.67	A	9.33	9.00		5.3	7.0	1.8	1.8	11.1	45	9	9	9	9	9	14	16	11	11	20			
23	TCA1609047	HIMANI JAIN	7.33	A	9.67	9.00		4.7	6.2	1.8	1.8	11.5	46	9.2	9.2	9.2	9.2	9.2	14	15	11	11	21			
24	TCA1609049	JATIN JAIN	9.67	9.00	A	9.00		5.7	7.6	5.4	7.2	1.8	50	10	10	10	10	10	16	18	15	17	12			
25	TCA1609051	MAHAK ARA	9.33	10.00	A	9.00		5.5	7.4	5.8	7.8	1.8	53	10.6	10.6	10.6	10.6	10.6	11	16	18	16	18	12		
26	TCA1609058	MD SHAMSHAD	9.33	A	9.33	9.00		5.5	7.4	1.8	1.8	11.1	44	8.8	8.8	8.8	8.8	8.8	14	16	11	11	20			
27	TCA1609060	MITANSHU MEHTA	9.67	A	9.33	9.00		5.7	7.6	1.8	1.8	11.1	43	8.6	8.6	8.6	8.6	8.6	14	16	10	10	20			
28	TCA1609062	MOHD AAMIR	10.00	10.00	A	9.00		5.8	7.8	5.8	7.8	1.8	49	9.8	9.8	9.8	9.8	9.8	16	18	16	18	12			
29	TCA1609065	MOHIT JAIN	10.00	10.00	A	9.00		5.8	7.8	5.8	7.8	1.8	52	10.4	10.4	10.4	10.4	10.4	16	18	16	18	12			
30	TCA1609067	NAMAN JAIN	9.00	A	8.67	8.00		5.2	7.0	1.6	1.6	10.3	41	8.2	8.2	8.2	8.2	8.2	13	15	10	10	18			
31	TCA1609069	NAMITA PRADHAN	9.67	9.33	A	9.00		5.7	7.6	5.5	7.4	1.8	53	10.6	10.6	10.6	10.6	10.6	11	16	18	16	18	12		
32	TCA1609075	PRAGATI JAIN	8.33	A	9.33	9.00		5.1	6.8	1.8	1.8	11.1	47	9.4	9.4	9.4	9.4	9.4	15	16	11	11	21			
33	TCA1609076	PRAGATI JAIN	8.33	7.67	A	9.00		5.1	6.8	4.9	6.4	1.8	45	9	9	9	9	9	14	16	14	15	11			
34	TCA1609079	PRANJAL JAIN	9.33	9.33	A	9.00		5.5	7.4	5.5	7.4	1.8	50	10	10	10	10	10	16	17	16	17	12			


 Director
 Faculty of Engineering
 Teerthanker Mahaveer University
 Moradabad

Sl.N o.	Enrollment No.	Name	ECS703																						
			Max. Marks																Total						
			10	10	10	10	40	6	8	6	8	12	60	12	12	12	12	12	18	20	18	20	24		
			CT1	CT2	CT3	Asn	I	CO1	CO2	CO3	CO4	CO5	E	CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5		
35	TCA1609081	PRIVANSHI JAIN	9.67	A	8.00	9.00		5.7	7.6	1.8	1.8	9.8	50	10	10	10	10	10	16	18	12	12	20		
36	TCA1609082	PRIVANSHU JAIN	8.00	A	8.00	9.00		5.0	6.6	1.8	1.8	9.8	48	9.6	9.6	9.6	9.6	9.6	15	16	11	11	19		
37	TCA1609088	RITIK JAIN	7.00	A	9.67	9.00		4.6	6.0	1.8	1.8	11.5	48	9.6	9.6	9.6	9.6	9.6	14	16	11	11	21		
38	TCA1609089	RITIKA JAIN	7.33	8.67	A	9.00		4.7	6.2	5.3	7.0	1.8	46	9.2	9.2	9.2	9.2	9.2	14	15	14	16	11		
39	TCA1609090	RIYA JAIN	10.00	A	9.67	9.00		5.8	7.8	1.8	1.8	11.5	49	9.8	9.8	9.8	9.8	9.8	16	18	12	12	21		
40	TCA1609092	SAHIL JAIN	6.67	9.33	A	9.00		4.5	5.8	5.5	7.4	1.8	44	8.8	8.8	8.8	8.8	8.8	13	15	14	16	11		
41	TCA1609095	SAJAL GUPTA	7.00	A	9.33	9.00		4.6	6.0	1.8	1.8	11.1	40	8	8	8	8	8	13	14	10	10	19		
42	TCA1609096	SAMBHAV JAIN	5.67	A	9.33	9.00		5.7	7.6	1.8	1.8	11.1	45	9	9	9	9	9	15	17	11	11	20		
43	TCA1609097	SAMBHAV KUMAR JAIN	9.33	A	9.33	9.00		5.5	7.4	1.8	1.8	11.1	44	8.8	8.8	8.8	8.8	8.8	14	16	11	11	20		
44	TCA1609100	SANKALP JAIN	5.33	6.33	9.33	9.00		3.9	5.0	5.1	6.8	11.1	39	7.8	7.8	7.8	7.8	7.8	12	13	13	15	19		
45	TCA1609101	SARTHAK JAIN	9.00	9.67	A	9.00		5.4	7.2	5.7	7.6	1.8	45	9	9	9	9	9	14	16	15	17	11		
46	TCA1609102	SAUMYA JAIN	6.00	9.67	9.67	9.00		4.2	5.4	5.7	7.6	11.5	53	10.6	10.6	10.6	10.6	10.6	11	15	16	16	18		
47	TCA1609111	SHUBHAM KUMAR JAIN	9.33	A	9.33	9.00		5.5	7.4	1.8	1.8	11.1	49	9.8	9.8	9.8	9.8	9.8	15	17	12	12	21		
48	TCA1609113	SIDDHARTH JAIN	6.33	7.67	8.67	9.00		4.3	5.6	4.9	6.4	10.5	44	8.8	8.8	8.8	8.8	8.8	13	14	14	15	19		
49	TCA1609115	SINJANE JAIN	A	9.00	9.33	8.00		1.6	1.6	5.2	7.0	10.9	27	5.4	5.4	5.4	5.4	5.4	7	7	11	12	16		
50	TCA1609117	SMRATI JAIN	9.33	A	9.67	9.00		5.5	7.4	1.8	1.8	11.5	52	10.4	10.4	10.4	10.4	10.4	16	18	12	12	22		
51	TCA1609118	SONYA JAIN	9.00	10.00	A	8.00		5.2	7.0	5.6	7.6	1.6	48	9.6	9.6	9.6	9.6	9.6	15	17	15	17	11		
52	TCA1609119	SONALI JAIN	9.33	A	10.00	9.00		5.5	7.4	1.8	1.8	11.8	49	9.8	9.8	9.8	9.8	9.8	15	17	12	12	22		
53	TCA1609121	SUBHAM JAIN	9.67	A	9.33	9.00		5.7	7.6	1.8	1.8	11.1	39	7.8	7.8	7.8	7.8	7.8	13	15	10	10	19		
54	TCA1609125	UPVAN JAIN	9.00	A	9.33	9.00		5.4	7.2	1.8	1.8	11.1	37	7.4	7.4	7.4	7.4	7.4	13	15	9	9	19		
55	TCA1609126	URVASHI TYAGI	5.67	A	8.33	8.00		3.9	5.0	1.6	1.6	9.9	38	7.6	7.6	7.6	7.6	7.6	11	13	9	9	18		
56	TCA1609127	VAIBHAV JAIN	4.67	6.00	A	9.00		3.7	4.6	4.2	5.4	1.8	32	6.4	6.4	6.4	6.4	6.4	10	11	11	12	8		
57	TCA1609129	VIKASH JAIN	9.33	A	9.33	9.00		5.5	7.4	1.8	1.8	11.1	42	8.4	8.4	8.4	8.4	8.4	14	16	10	10	20		
58	TCA1609133	YASHI SHARMA	9.33	A	9.33	9.00		5.5	7.4	1.8	1.8	11.1	44	8.8	8.8	8.8	8.8	8.8	14	16	11	11	20		
59	TCA1609135	ABHISHEK JAIN	6.67	9.67	8.67	9.00		4.5	5.8	5.7	7.6	10.5	35	7	7	7	7	7	11	13	13	15	17		
60	TCA1609136	VIDHOR JAIN	8.33	8.67	8.67	9.00		5.1	6.8	5.3	7.0	10.5	42	8.4	8.4	8.4	8.4	8.4	14	15	14	15	19		
61	TCA1711001	SANSKRITI JAIN	9.33	A	8.33	9.00		5.5	7.4	1.8	1.8	10.1	43	8.6	8.6	8.6	8.6	8.6	14	16	10	10	19		
62	TCA1711002	VIJAY KUMAR TOMAR	8.67	6.00	9.33	8.00		5.1	6.8	4.0	5.2	10.9	37	7.4	7.4	7.4	7.4	7.4	12	14	11	11	13		
63	TCA1711003	VAIBHAV JAIN	7.00	A	7.33	9.00		4.6	6.0	1.8	1.8	9.1	38	7.6	7.6	7.6	7.6	7.6	12	14	9	9	17		
64	TCA1711005	MOHFEZ AHMAD	8.67	A	8.33	9.00		5.3	7.0	1.8	1.8	10.1	39	7.8	7.8	7.8	7.8	7.8	13	15	10	10	18		
65	TCA1711006	SHRUTIKA KHANAK	9.33	A	9.67	9.00		5.5	7.4	1.8	1.8	8.5	40	8	8	8	8	8	14	15	10	10	16		
66	TCA1711010	VAISHALI	9.67	A	9.33	9.00		5.7	7.6	1.8	1.8	11.1	46	9.2	9.2	9.2	9.2	9.2	15	17	11	11	20		
																			18	20	18	20	24		
																			CO1	CO2	CO3	CO4	CO5		
																			9	10	9	10	12		
																			65	65	65	52	52		

Target >50
No of Students have >Target


Faculty of Engineering
Teerthanker Mahaveer University
Moradabad.

Benchmark and Attainment

50% of Students get more than target	1
70% of Students get more than target	2
80% of Students get more than target	3

Students Above Threshold

	Cos	Students	%	Att.
	CO1	65	98.5	3
	CO2	65	98.5	3
	CO3	65	98.5	3
	CO4	52	78.8	2
	CO5	52	78.8	2

2.6

CO	Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understanding vulnerability and the weaknesses of unsecured network	1												2	3	3
CO2	Understanding information security goals, classical encryption techniques and acquire fundamental knowledge on the concepts of network security	1												3	2	3
CO3	Applying different encryption and decryption techniques to solve problems related to confidentiality and authentication	2	1		2	1							1	1	1	1
CO4	Analyzing the performance of different encryption algorithms for verifying the integrity of varying message sizes	1	1			1							1	2	2	1
CO5	Analyzing different digital signature algorithms to achieve authentication and create secure applications		1		2	1							1	3	2	1
Average		1.25	1		2	1							1	2.2	2	1.8
	Attainment	1.08	0.87	0.00	1.73	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.87	1.91	1.73	1.56


 Director
 Faculty of Engineering
 Teerthanker Mahaveer University
 Moradabad.