DEPARTMENT OF COMPUTER APPLICATIONS

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	Master of Computer Applications		
Course Title	Information Security Lab		
Course Code	CA708	No. of Credits	2
Course Code of Pre-requisite subject(s)	CA724		
Session	January 2022	Section (if, applicable)	A and B
Name of Faculty	Dr. Ghanshyam S. Bopche	Department	Computer Applications
Email	bopche@nitt.edu	Telephone No.	0431-2503735
Name of PAC Chairman	Dr. S. Sangeetha		
E-mail	sangeetha@nitt.edu	Telephone No.	0431-2503743
Course Type	Core course		

Syllabus (approved in BoS)	
Exercises to learn information security related programming and tools.	
COURSE OUTCOMES (CO)	
Course Outcomes	Aligned Programme Outcomes (PO)
Students will be able to: 1. Implement cryptography techniques to data.	PO I, II, III, IV, V
2. Simulate the various network security issues.	PO I, II, III, IV, V
3. Experiment with application security.	PO I, II, III, IV, V
4. Explore the nature and logic behind the various security threats on the web.	PO I, II, III, IV, V

COURSE PLAN – PART II			

COURSE OVERVIEW

This course covers the lab sessions on the topics – Cryptographic algorithms, network security, application security, and Web application security. The hands-on experience gained from this Lab will help students protecting critical data and information from ever-growing Cyber-attacks.

COURSE TEACHING AND LEARNING ACTIVITIES

S. No.	Week/ Contact Hours	Topic	Mode of Delivery
1	Week 1 (3 Hrs)	Classical encryption algorithms – Caesar Cipher, Double Transposition Cipher	Demo (MS Team), C/C++
2	Week 2 (3 Hrs)	Classical encryption algorithms – Monoalphabetic Substitutional Algorithm, Polyalphabetic Substitutional Algorithm (Vigenere Cipher)	Demo (MS Team), C/C++
3	Week 3 (3 Hrs)	Classical encryption algorithms – Transpositional Cipher, One-Time Pad	Demo (MS Team), C/C++
4	Week 4 (3 Hrs)	Symmetric Key Encryption: Stream Ciphers - A5/1 Algorithm and RC4	Demo (MS Team), C/C++
5	Week 5 (3 Hrs)	Symmetric Key Encryption: Block Cipher - Data Encryption Standard	Demo (MS Team), C/C++/Python
6	Week 6 (3 Hrs)	Public Key Cryptography – Diffie-Hellman Algorithm, RSA Algorithm	Demo (MS Team), C/C++/Python
7	Week 7 (3 Hrs)	Applications of Public Key Cryptography – Confidentiality, Digital Signature, Authentication, and Key Distribution	Demo (MS Team), C/C++/Python
8	Week 8 (3 Hrs)	Hashing Algorithms – MD5 and SHA, Hashing Applications	Demo (MS Team), C/C++/Python
9	Week 9 (3 Hrs)	Network-based Attacks – Man-In-the-Middle Attack, WiFi Password Cracking	Demo (MS Team), Kali Linux
10	Week 10 (3 Hrs)	Network-based Attack Prevention Tools – IDPS, Firewall, and UTM.	Demo (MS Team), SNORT and SURICATA
11	Week 11 (3 Hrs)	Application-based Cyber Attacks and Security	Demo (MS Team), Kali Linux
12	Week 12 (3 Hrs)	Web Application Security: Attacks and Prevention	Demo (MS Team), OWASP, DVWA and

				Kali Linux

COURSE ASSESSMENT METHODS

S. No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Lab Activities	Periodic	--	30
2	Evaluation-I	8th Week	120 Minutes	20
3	Evaluation-II	12th week	120 Minutes	20
CPA*	Compensation Assessment*	As per the academic schedule	120 Minutes	20
4	Final Assessment	As per the academic schedule	120 Minutes	30
		Total Marks		100

*mandatory; refer to guidelines on Page 3

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

The students through the class representative may give their feedback at any time to the course coordinator which will be duly addressed. The students may give their feedback during class committee meetings.

COURSE POLICY (including compensation assessment to be specified)

MODE OF CORRESPONDENCE
By Email: bopche@nitt.edu
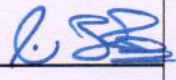
COMPENSATION ASSESSMENT POLICY
The compensation assessment will be conducted for absentees in assessments (other than final assessment) only after the submission of medical or On-duty certificates signed by the competent authority.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

➤ **At least 75% attendance in each course is mandatory.**

➤ **A maximum of 10% shall be allowed under On Duty (OD) category.**

➤ Students with **less than 65% of attendance** shall be prevented from writing the final assessment and **shall be awarded 'V' grade.**

ACADEMIC DISHONESTY & PLAGIARISM

➤ Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.

➤ Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.

➤ The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice

and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION

NIL

FOR APPROVAL

Course Faculty _____ CC-Chairperson _____ HOD _____