



Department of Computer Applications National Institute of Technology, Tiruchirappalli

COURSE PLAN

Name of the programme and specialization	M. C. A.		
Course Title	Information Security		
Course Code	CA724	No. of Credits	3
Course Type	Core	Learning Hours	3
Course Coordinator	Dr. P. J. A. Alphonse	Faculty Name	Dr. Mrs. B. Janet
Course Code of Pre-requisite subjects	CA 715, CA 712, CA 714		
E-mail	janet@nitt.edu	Telephone No.	0431-2503741
Session	January 2019	Office	Lyceum 108
Course Page	http://moodle.nitt.edu/moodle/course/view.php?id=19		

Course Syllabus

Critical Characteristics of Information, NSTISSC Security Model, Components of an Information System, Securing the Components, Balancing Security and Access, SDLC, Security SDLC

Cryptography: Classical Cryptography, Symmetric Cryptography, Public Key (Asymmetric cryptography), Modern Cryptography. Forensics: DRM technology (including watermarking and fingerprinting of images, video and audio), Steganography, Biometrics

Network Security: Network Protocols, Wireless Security (WiFi, WiMAX, Bluetooth, cell phone), IDS and Network Intrusion Management

Application Security: Email Security, Web Security, and Database Security, Secure Software Development, VoIP Security

Information Security Threats: Viruses, Worms and other malware, Email Threats, Web Threats, RFID, Identity Theft, Data Security Breaches, Hacking Tools and Techniques

Reference:

1. W. Stallings, Cryptography and Network Security: Principles and Practice, 6th Edition, Prentice Hall, 2013
2. Neil Daswani, Christoph Kern, Anita Kesavan, "Foundations of Security: What Every Programme", APRESS, 2007.
3. Michael E Whitman and Herbert J Mattord, "Principles of Information Security", Vikas Publishing House, 2003.

Course Objectives

1. To understand and apply the models of information security
2. To study and analyze cryptographic and forensic methods
3. Analyze and simulate the network and application security
4. Explore the nature and logic behind security threats on the web as an ethical hacker

Course Outcome (CO)	Aligned Programme Outcome (PO)
Identify information security models and their characteristics	1,2,6,7,10,11
Analyze the different types of cryptographic and forensic methods	1,2,5,7,12
Study the network security issues	1,2,3,5,7,10,11,12
Study the application security problems and apply the fixes	1,2,3,4,5,7,10,11,12
Identify different threats using tools and suggest fixes for security issues.	1,2,3,4,5,6,7,8,10,11,12

Lectures

Class lectures and class exercise with self-learning videos will form the primary teaching activity, the schedule for which is outlined below. Lecture material will address the intended learning objectives, and loosely follow the readings as specified in the Moodle Course Page. The lecture material will be made available before the class. The lectures are meant to be interactive, where learning takes place through interactive discussion and activity in class. The Moodle site will be available for detailed content dissemination and discussion inside and outside the classroom, between students and with the teacher. Student engagement in class and in the Moodle online forum will count towards assessment of student participation.

Guest Lectures

Structured lectures will be supplemented by guest lectures by practitioners and researchers from industry and academia. These will serve to show the practical relevance of the course content and also expose the students to the open problems for research.

Course Teaching and Learning Activities

Week	Mode of Delivery	Topics	Materials
1.	Classroom activity	Critical characteristics of Information	
		NSTISSC Security Model	
		Components of information System	

		Securing	Refer Moodle Course Page
2.	Classroom activity	Balancing security and access	
		SDLC	
3.	Classroom activity	Classical Cryptography	
		Symmetric Cryptography	
		Asymmetric Cryptography	
4.	Classroom activity	Modern Cryptography	
		DRM	
5.	Classroom activity	Steganography	
		Biometrics	
6.	Classroom activity	Network security	
		Wireless security	
		Intrusion Management	
7.	Classroom activity	Application security	
		Database security	
		Email security	
8.	Classroom activity	VOIP security	
		Vulnerability and Threats detection	
9.	Classroom activity	Tools	
		Breaches and fixes	

All relevant material will be made available to the students in the moodle course site. Classroom activity may include lectures, tutorials, quiz, simulation exercise, laboratory exercise, mini-project, group task and seminar.

The assessment details for this course are given below.

Sl. No.	Mode of Assessment	Week	Duration in Minutes	Weightage (%)
1.	Test – 1	4 th week	60	15
2.	Test – 2	8 th week	60	15
3.	Project 1	5 th week	30	15
4.	Project 2	10 th week	30	15
CPA	Compensation Assessment*	15th week	30	15
5.	End Semester Exam	18 th week	120	40
Total				100

Course Exit Survey

- The students may give their feedback at any time to the course Teacher or through an email message in moodle, which will be duly addressed.
- The students may also give their feedback during Class Committee meeting and fill up the feedback form in moodle site at the end of each test.

Course Policy

Classroom Behavior

- i) Ensure that the course atmosphere, both in the class and discussions outside the class room with Teacher, is conducive for learning. Participate in discussions but do not dominate or be abusive. Be considerate of your fellow students and avoid disruptive behavior.

Exam policy

- i) Each student is required to take all exams at the scheduled times. All exceptions must be cleared with the professor prior to the exam time. Exams missed for insufficient reason and without being cleared with the professor prior to the exam time will be assigned a score of zero.
- ii) Passing Minimum is 40%.

Assignments

- i) All assignments are due on or before the mentioned date and time and is to be uploaded on the course moodle site.

Plagiarism

- i) The students are expected to come out with their original work on activity, assignments and tests/examinations. If found to be plagiarized, it will be assigned a score of zero.

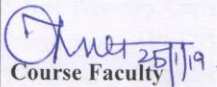
Attendance

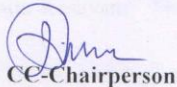
- i) At least 75% attendance in each course is mandatory.
- ii) A maximum of 10% shall be allowed under On Duty (OD) category.
- iii) Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

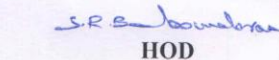
Academic dishonesty & plagiarism

- i) Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- ii) Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- iii) 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.

FOR APPROVAL


Course Faculty
(Dr. Mrs. B. Janet)


CC-Chairperson
(Dr. S. Dominic)


HOD
(Dr. S. R. Balasundaram)