SCHEME OF COURSE WORK

Course Details:

Course Title	**: Biometric Security**		
Course Code	**:13CS2213**	**L T P C**	**:4 0 0 3**
Program:	**: M.Tech**		
Specialization:	**: Cyber Security**		
Semester	**:IInd Semester**		
Prerequisites	**: Fundamental knowledge in Biometrics**		
Courses to which it is a prerequisite	**: Physical & Biometric Science**		

Course Outcomes (COs):

1	Demonstrate knowledge of the basic physical and biological science and engineering principles underlying biometric systems.
2	Understand and analyze biometric systems at the component level and be able to analyze and design basic biometric system applications.
3	Able to work effectively in teams and express their work and ideas orally and in writing.
4	Identify the sociological and acceptance issues associated with the design and implementation of biometric systems.
5	Understand various Biometric security issues.

Program Outcomes (POs):

A graduate of Cyber Security Specialization will be able to

1	Understand what are the common threats faced today.
2	The foundational theory behind Cyber security.
3	The basic principles and techniques when designing a secure system.
4	How to think adversarial, how today's attacks and defenses work in practice, how to assess threats for their significance, and how to gauge the protections and limitations provided by today's technology.
5	The basic principles and techniques in ethical hacking and overcome various hackers.
6	Learn various security methodologies to enhance the security of web.
7	Basic principles of cyber laws and security policies.
8	Various scripting languages to develop programs for security mechanisms.
9	Various tools and methodologies to analyze the various cyber crimes.
10	Secure protocols inner mechanisms and their practical implementation.
11	Various Forensic technologies and methodologies for security measurements analization.
12	Intrusion detection techniques and image model security aspects in Android application developments.

Course Outcome versus **Program Outcomes:**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1			S			S						
CO-2	M	M	S							S		M
CO-3			M							S		M
CO-4		S		S								
CO-5												S

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

Assessment Methods:	Assignment / Quiz / Seminar / Case Study / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	Biometrics- Introduction- benefits of biometrics over traditional authentication systems -benefits of biometrics in identification systems.	CO-1	1.What are the benefits of Biometrics over traditional Authentication systems.	▫ Lecture ▫ Discussion	Assignment (Week 3 - 4)
2	Selecting a biometric for a system – Applications - Key biometric terms and processes.	CO-1	1.Explain a biometric system Applications.	▫ Lecture / Discussion	Mid-Test 1 (Week 9)
3	Biometric matching methods - Accuracy in biometric systems.	CO-2	1.Explain biometric matching Methods.	▫ Lecture/ Discussion	Seminar (Week 3 - 6)
4	Physiological Biometric Technologies: Fingerprints - Technical description – characteristics.	CO-3,CO-4	1.Explain Fingerprint biometric System.		
5	Fingerprints-Competing technologies - strengths – weaknesses – deployment.	CO-3	1.Explain strengths and Weaknesses of fingerprint Biometric system.		
6	Facial scan - Technical description - characteristics - weaknessesdeployment.	CO-3,CO-4	1.Explain strengths and Weaknesses of facial scan System.		
7	Iris scan - Technical description – characteristics - strengths – weaknesses – deployment.	C0-4	1.Explain Iris scan biometric System.		

8	Retina vascular pattern- Technical description – characteristics - strengths – weaknesses – deployment.	CO-4	1.Explain Retina vascular pattern Biometric system and it's Strengths and weaknesses.		
9	**Mid-Test 1**	CO-1,CO-2			
10	Hand scan - Technical descriptioncharacteristics - strengths – weaknesses deployment.	CO-3	1.Explain strengths and Weaknesses of hand scan Biometric system.	▫ Lecture ▫ Discussion	Mid-Test 2 (Week 18)
11	DNA biometrics.	CO-3	1.Explain DNA Biometrics.		Seminar (Week 10 - 15)
12	Behavioral Biometric Technologies: Handprint Biometrics - DNA Biometrics.	CO-3	1.Explain Handprint biometrics.		
13	Signature and handwriting technology - Technical description – classification.	CO-3	1.Explain signature and hand-writing biometrics.		
14	Keyboard / keystroke dynamics.	CO-5	1.Explain Keystroke dynamics.		
15	Voice – data acquisition - feature extraction - characteristics - strengths – weaknesses-deployment.	CO-5	1.Explain Voice scan biometric System.		
16	Multi biometrics and multi factor biometrics - two-factor authentication with passwords.	CO-5	1.Differentiate Multi biometrics And multi factor biometrics.		
17	Tickets and tokens – executive decision - implementation plan.	CO-5	2.Explain about Tickets and Tokens.		
18	**Mid-Test 2**				
19/20	**END EXAM**				