

<b>COURSE TITLE</b>	<b>TE142445: Multimedia and Information Security</b> Credits: 2 ELECTIVE COURSE
<b>LEARNING OBJECTIVES</b>	To study security concepts and techniques required to implement security for processing, transmission, and distribution of information and multimedia signals.
<b>COMPETENCY</b>	The students are expected to: <ul style="list-style-type: none"> <li>• Understand security concepts from computation and information theoretic points of view, for data and multimedia signals</li> <li>• Understand cryptography techniques: secret key &amp; public key</li> <li>• Understand steganographic and digital watermarking techniques for multimedia signals</li> <li>• Understand biometric techniques for security</li> <li>• How to implement discussed techniques and to analyze its performance</li> </ul>
<b>SUBJECTS</b>	<ul style="list-style-type: none"> <li>• Computer security overview</li> <li>• Computational and information theoretic security</li> <li>• Introduction to cryptography</li> <li>• Secret key cryptography</li> <li>• Hashes and message digests</li> <li>• Public key cryptography</li> <li>• Key distribution, management, self-certification</li> <li>• Authentication</li> <li>• Access control and secure system design</li> <li>• Cryptography and system security</li> <li>• Biometric techniques: fingerprint, voice, face, gait, etc.</li> <li>• Steganography and digital watermarking techniques</li> <li>• Applications</li> </ul>
<b>MAIN REFERENCES</b>	<ul style="list-style-type: none"> <li>• Charlie Kaufman, Radia Perlman and Mike Speciner, <u>Network Security: Private Communication in a Public World</u>, 2<sup>nd</sup> Ed., Prentice Hall, 2002.</li> <li>• Ingemar Cox, Matthew Miller, Jeffrey Bloom, Jessica Fridrich &amp; Ton Kalker, <u>Digital Watermarking and Steganography</u>, 2<sup>nd</sup> ed., Morgan Kaufmann, 2007.</li> </ul>
<b>OPTIONAL REFERENCES</b>	<ul style="list-style-type: none"> <li>• Borko Furht, Edin Muharemagic, Daniel Socek, <u>Multimedia Encryption and Watermarking</u>, Springer, 2005.</li> <li>• William Stallings, <u>Network Security Essentials: Applications and Standards</u>, Prentice-Hall, 2000.</li> <li>• IEEE Trans. on Information Forensics and Security</li> <li>• IEEE Trans. on Multimedia</li> <li>• IEEE Trans. on Image Processing</li> </ul>
<b>PREREQUISITE</b>	-