

<b>Devi Ahilya University, Indore, India Institute of Engineering &amp; Technology</b>				<b>ME II Year Information Technology (Sp. Information Security) Semester- B</b>			
<b>Subject Code &amp; Name</b>	<b>Instructions Hours per Week</b>			<b>Credits</b>			
<b>ISR2E1: Biometric Systems &amp; Security</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>
<b>Duration of Theory Paper: 3 Hours</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>5</b>

**Course Objective:**

To study the concepts of various biological based information security systems.

**COURSE CONTENT**

**Unit I : Overview of Biometrics**

Definitions, biometric modalities, course outline, Basic applications: access control, e-commerce, forensics.

**Unit II : Design of a Biometric System**

Building blocks, Modes of operation, Fingerprint verification: Minutiae Based Fingerprint Matching, Non-minutiae Based Representations, Fingerprint Enhancement, and Fingerprint Classification. Face Recognition:- Introduction, Authentication vs. Identification, Challenges in Face recognition, Algorithms for face recognitions.

**Unit III : Iris Recognition**

Introduction, devices for capturing Iris, Iris representation schemes, Iris recognition algorithms. Biometrics based on hand geometry, signature, ear, palm, voice and DNA.

**Unit IV : Multimodal Biometrics**

Limitations of unimodal systems, multibiometric scenarios, levels of fusion, system design, score fusion techniques, score normalization, user-specific parameters, and soft biometrics.

**Unit V : Case Study Presentations**

Biometrics in Banking Industry, Biometrics in Computerized, Patient Records, Biometrics in Credit Cards, Biometrics in Mass Disaster Victim, Identification Forensic Odontology

**Text and Reference books:**

- [1] D. Maltoni, D. Maio, A. K. Jain, and S. Prabhakar; "Handbook of Fingerprint Recognition"; Springer Verlag, 2003.
- [2] A.K. Jain, R. Bolle, S. Pankanti (Eds.); "BIOMETRICS: Personal Identification in Networked Society", Kluwer Academic Publishers, 1999.
- [3] J. Wayman, A.K. Jain, D. Maltoni, and D. Maio (Eds.); Biometric Systems: Technology, "Design and Performance Evaluation"; Springer, 2004.