

Course Name:	ECE 51000 Introduction to Biometrics
Credit and contact hours:	(3 cr.) Class 3
Course coordinator's name	Paul Salama
Textbook	Bolle / Connell / Pankanti / Ratha / Senior (9780387400891)
Course Information	<p>ECE 51000 Introduction to Biometrics (3 cr.) P: ECE 30200 or graduate standing. Class 3. Basic concepts of biometrics, biometrics systems, and fundamental theories in biometrics; help student learn how to design and develop a biometric system for multi-level security applications. Topics include introduction to biometrics, face recognition, iris recognition, fingerprint recognition, speaker recognition, other biometrics, multimodal biometrics, issues and concerns in biometrics, and future biometrics.</p> <p>Prerequisites/ CoRequisite ECE 301 and ECE 302; or Graduate Standing</p> <p>Indicate whether a required, elective, or selected elective course in the program</p>
Goals for the course	<p>Upon successful completion of the course, students should be able to</p> <ol style="list-style-type: none"> 1. Understand the scope and options for biometrics [1,2,3,6] 2. Familiar with various biometric technologies and systems [1,2] 3. Select and preliminary design of a biometric system for positive human identification for specific application scenario. This biometric system can be unimodal or multimodal [1,2,3,6] 4. Evaluate of various biometric systems[1,2,4,6] 5. Have working knowledge of each of the biometric technologies covered in lectures [1,2,7,6]
List of topics to be covered	<ol style="list-style-type: none"> 1. Introduction to Biometrics (1 class) 2. Brief introduction of digital image processing and Matlab in biometric image/signal processing (3 classes) 3. Face recognition algorithms and systems (5 classes) 4. Fingerprint recognition algorithms and systems (3 classes) 5. Iris recognition algorithms and systems (6 classes) 6. Speech & speaker recognition algorithms and systems (4 classes) 7. Brief introduction of other biometrics (2 classes): <ol style="list-style-type: none"> a. Vein recognition b. Hand Geometry c. Palm recognition d. Gait recognition

	e. Other biometrics 8. Multimodal biometrics (2 classes) 9. Privacy issues and other aspects of biometrics (1 class) 10. Applications of biometrics & future trends (1 class) 11. Exams and quizzes (2 classes and Final exam period)
Syllabi Approved by	Paul Salama
Date of Approval	11/12/2021