Software Engineering Dept.
Capstone Project Topics

**Capstone Project Topics offered by Assist.Prof. Dr. M. Alper Tunga**

- An online hotel reservation system
- An online airline ticket reservation system
- An online university registrar office tool
- An online course management system
- An online classroom booking system
- An online multiple-choice test tool
- An online superstore marketing tool
- An e-banking system
- A bidding type marketing website
- An online “programming language” examination tool
- Development of a text editor
- A Linux operating system performance tool

*All projects will include analysis, design, development and testing phases.*

**Capstone Project Topics offered by Assist.Prof. Dr. Y. Batu Salman**

- Human computer interaction (HCI)
- Behavior in virtual environment
- Interface design and universal design
- Predictive models and theories of interaction
- Speech, graphic, haptic and multimodal interaction
- Agent – based interfaces and systems
- System and user evaluation studies
- Mobile, wearable, and ubiquitous computer systems
- Mobile interaction design
**Capstone Project Topics offered by Instr. Pinar Sansaray Boluk**

*Requirements: Advanced Research, Programming and Design Skills (Java, Matlab, J2ME, Java based JSIM Simulator)*

- A real time data security mechanism over Wireless Sensor Networks will be proposed and coded. Students should investigate the available problem solutions extensively for Wireless Networks. Then, the proposed solution for this problem is designed with UML diagrams. In the program, data transformation process should be performed. The conversion process has two way. Transmitted data will be converted to encrypted one. If the user want to read secret data, data will be converted to readable one. Secret data will have also some constraints. Problem will be solved in Java.

- A real time data security mechanism will be designed and coded for Image Transfer over Wireless Sensor Networks. Digital watermarking is the process of embedding information into a digital signal in a way that is difficult to remove. The techniques are also used in data privacy. A privacy based watermarking technique is proposed and coded in this thesis. The problem will be solved in Matlab.

- The performance of the video data transmission is analyzed in terms of energy, delay, perceptual quality for Wireless Multimedia Sensor Networks. Students can select matlab or java for this thesis.

- Image Transmission with different multimedia data coding techniques in wireless sensor networks. Firstly, several multimedia techniques are investigated. Then their implementations and comparisons are performed in matlab or java.

- In this thesis, a survey is done for Interaction of Mobile Devices and Wireless Sensor Networks. Then a simple framework is designed for health applications.  

- The performance of the audio data transmission is analyzed in terms of energy, delay, perceptual quality for Wireless Multimedia Sensor Networks. Students can select matlab or java for this thesis.

- Convergence of Mobile Phones and Sensor Networks  

  Firstly, investigate available researches for this problem. Then, use available platforms for mobile and sensor communication.

- The effect of the cost function parameters on the performance of the WMSN routing in terms of perceptual quality, energy, and delay.

- The effect of the application layer parameters on the performance of the WMSN routing in terms of perceptual quality, energy and delay.
• Performance comparison of several error correction techniques for multimedia transmission in WMSN

**Capstone Project Topics offered by Instr. Tamer Uçar**

• Development of a web based, database driven, multiuser system such as:
  - Online reservation systems (ticket, hotel, etc.) with user and administrator interfaces.
  - Online course management system.
  - E-exam module.
  - A blog creator with administrative capabilities for multiple users.
  - Banking simulation (based on specific modules).
  - Online (board, puzzle) gaming portal.

• Development of a database driven, network supported .NET platform application with GUI.

• Your topic offers that fit the description above are also welcomed.