This course covers principles of intelligent control including adaptive, learning, and self-organizing systems. Neural networks and fuzzy logic systems for feedback control. Discrete event systems, Dempster-Shafer, Petri Nets, and decision-making supervisory control systems. Wireless Sensor Networks, intelligent machinery monitoring and repair. Advanced sensor processing including Kalman filtering and sensor fusion. System Identification. Prerequisite: none. Course outline is linked to http://www.uta.edu/utari/acs

Fuzzy logic systems are based on linguistics, and neural networks on biological nervous systems. Both can be used to design learning control systems.

Applications of Intelligent Systems
- Communications systems network control
- Communication Systems Signal Decoding
- Navigation, Guidance, and Control
- Wireless sensor network decision & control
- Fault diagnosis and prediction for: bridge and civil infrastructures, vehicle systems and automotive, aerospace systems
- Speech processing
- Mobile and Swarm Robotics, Formation Control
- Traffic Systems and Vehicle Control
- Control of Complex Industrial Processes

EE 5322 Intelligent Control Systems
Fall 2015

F.L. Lewis
www.uta.edu/utari/acs

Mobile robot planning and control

Fast Fourier Transform & Speech Processing

Wireless sensor networks for machinery monitoring and security area denial