

COURSE TITLE	TE142451: Software Defined Radio and Cognitive Wireless Network Credits: 2 ELECTIVE COURSE
LEARNING OBJECTIVES	To study concepts of cognitive radio architecture and networks, as well as signal processing and computation techniques required for the implementation of cognitive radio.
COMPETENCY	The students will understand: <ul style="list-style-type: none"> • Concepts of cognition, awareness and adaptation in radio communication system. • SDR architecture and its components. • Signal processing and computation techniques for the implementation of cognitive radio.
SUBJECTS	<ul style="list-style-type: none"> • Introduction to adaptive, aware and cognitive radios • Cognitive networks • Cognitive radio architecture • Software defined radio architectures for cognitive radios • Codes and games for dynamic spectrum access • Efficiency & coexistence strategies for cognitive radio • Spectrum sensing for cognitive radio applications • Location information management system • Applications of cognitive radio
MAIN REFERENCES	<ul style="list-style-type: none"> • Joseph Mitola III, <u>Cognitive Radio Architecture: The Engineering Foundations of Radio XML</u>, Wiley, 2006.
OPTIONAL REFERENCES	<ul style="list-style-type: none"> • Huseyin Arslan, <u>Cognitive Radio, Software Defined Radio and Adaptive Wireless Systems</u>, Springer, 2007. • S. Haykin, "Cognitive radio: brain empowered wireless communications," <u>IEEE J. Sel. Areas in Communications</u>, vol. 23, no. 2, pp. 201-220, Feb. 2005. • I.F. Akyildiz, W.-Y, Lee, M.C. Vuran, & S. Mohanty, "Next generation/dynamic spectrum access/cognitive radio wireless networks: A survey," <u>Computer Network</u>, vol. 50, no. 13, pp. 2127-2159, Sep. 2006.
PREREQUISITE	-