

Course Information	
Course title	Introduction to Intelligent Vehicles
Semester	110-1
Designated for	COLLEGE OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE GRADUATE INSTITUTE OF COMPUTER SCIENCE & INFORMATION ENGINEERING
Instructor	CHUNG-WEI LIN
Curriculum Number	CSIE5452
Curriculum Identity Number	922 U4490
Credits	3.0
Course Syllabus	
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Course Description	<p>Intelligent vehicles can communicate with other vehicles or roadside units and behave autonomously. They are believed to significantly change the way that people move from a place to another place. This class will introduce fundamental knowledge in intelligent vehicles and then focus on some specific advanced topics (e.g., security). The knowledge and topics will bring state-of-the-art technology to students and develop their skills in system modeling, design, and analysis.</p> <p>There are mainly four parts in this class:</p> <p>(1) Background: This part will introduce traditional (i.e., without connectivity and autonomy) system architecture, vehicular networks, and basic design and analysis approaches.</p> <p>(2) Applications: This part will introduce applications of intelligent vehicles, including advanced driver-assistance systems, cooperative adaptive cruise control, and intersection management.</p> <p>(3) Technology: This part will introduce the technology which is needed to realize the applications of intelligent vehicles.</p> <p>(4) Advanced Topics: This part will introduce advanced topics such as over-the-air update, security, and certification.</p>

		Depending on students' interests, final projects can be survey, implementation, or research.
Course Objective		<ul style="list-style-type: none"> · Understanding the traditional system architecture and networks. · Understanding the state-of-the-art applications and technology of intelligent vehicles. · Developing skills in system modeling, design, and analysis. · Using or implementing simulation or analysis tools. · Conducting preliminary research.
Progress		
Week	Date	Topic
Week 1	9/27	[0] Course Introduction [1] System Architecture
Week 2	10/04	[2] Timing Analysis I
Week 4	10/18	[3] Timing Analysis II
Week 5	10/25	[4] System Design
Week 6	11/01	[5] Advanced Driver-Assistance Systems [6] Intersection Management
Week 7	11/08	Quiz 1 [6] Intersection Management
Week 8	11/15	[7] Connectivity
Week 9	11/22	[8] Sensing and Perception
Week 10	11/29	[9] Planning and Control
Week 11	12/06	[10] Verification
Week 12	12/13	Quiz 2 [11] Security
Week 13	12/20	[12] Edge Computing [13] Certification [14] Summary
Week 14	12/27	Project Presentation
Week 15	01/03	Project Presentation
Week 16	01/10	Project Presentation