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| |  | | --- | | **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](https://nol2.aca.ntu.edu.tw/nol/coursesearch/teacher.php?op=s2&td=902099) | | Curriculum Number | CSIE5452 | | Curriculum Identity Number | 922 U4490 | | Credits | 3.0 | | **Course Syllabus** | | | **Please respect the intellectual property rights of others and do not copy any of the course information without permission** | | | Course Description | 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.  There are mainly four parts in this class:  (1) Background: This part will introduce traditional (i.e., without connectivity and autonomy) system architecture, vehicular networks, and basic design and analysis approaches. (2) Applications: This part will introduce applications of intelligent vehicles, including advanced driver-assistance systems, cooperative adaptive cruise control, and intersection management. (3) Technology: This part will introduce the technology which is needed to realize the applications of intelligent vehicles. (4) Advanced Topics: This part will introduce advanced topics such as over-the-air update, security, and certification.  Depending on students' interests, final projects can be survey, implementation, or research. | | Course Objective | ．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 | |

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