



Continental
The Future in Motion



Continental AECS Master Automotive Electronic Control Systems

14.05.2020 – Facultatea de Electronica , Telecomunicatii si Tehnologia Informatiei

www.continental.com

Continental AECS Master 1

Automotive Electronic Control Systems

Mandatory Discipline

Elective Disciplines

Facultative Disciplines

Semester 1
2020

Vehicle Electronics System

Course

Overview

Focus:

Complete overview of architecture and systems from the car as Sensors, Drivers, Instrumentation or Diagnosis



Embedded Signaling, Communication and Networking

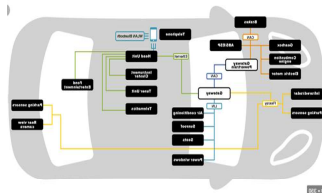
Course

Laboratory

Overview

Focus:

Overview of communication and networking protocols used in the cars as CAN , LIN , Ethernet



Embedded Systems Engineering and Testing

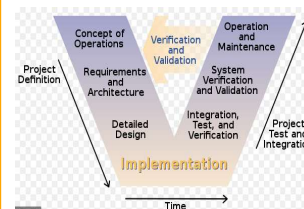
Course

Laboratory

Overview

Focus:

Overview of defining and test a system as intended and to meet customer expectations.



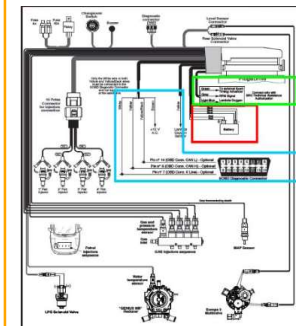
Electronics for Automotive Systems

Laboratory

Overview

Focus:

Practical aspects of Electronic Components, Electronic Circuits Architecture and Design inside Automotive Systems.



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Semester 1
 2020

Programming Embedded Systems

Course

Laboratory

Practice

Overview

Focus:
 Practical aspects of basic programming and microcontroller architecture used to build car systems

Programming DSP for Embedded and Real time Systems

Course

Laboratory

Practice

Overview

Focus:
 Aspects of techniques and technologies for designing and implementing an optimal embedded system with Digital Signal Processing programming

Real-Time Process Control

Social Competence & Interpersonal Skills in organization environment

Course

Laboratory

Overview

Focus:
 Aspects of personal development and social competences as Communication Skills, Presentation Skills, Time Management, etc

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Semester 2
2021

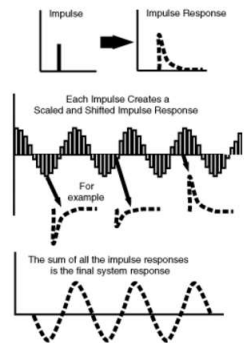
Vehicle Control Systems

Course

Overview

Focus:

Complete overview of the mechanisms and concepts as of control vehicle electronic systems.



Embedded System Design and Modeling

Course

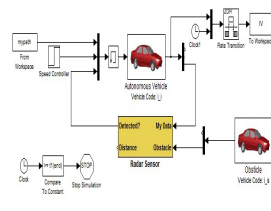
Laboratory

Practice

Overview

Focus:

Practical model Based Development with Matlab protocols



Programming Embedded Systems 2

Course

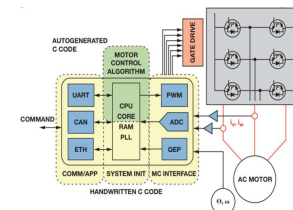
Laboratory

Practice

Overview

Focus

Practical aspects of advance programming and microcontroller architecture used to build car systems



Hardware Development of Automotive Electronic Systems

Course

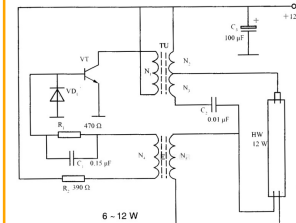
Laboratory

Practice

Overview

Focus:

HW Development of Embedded Systems and practical aspects of electronics dispositive and circuits



Automotive Power Electronics

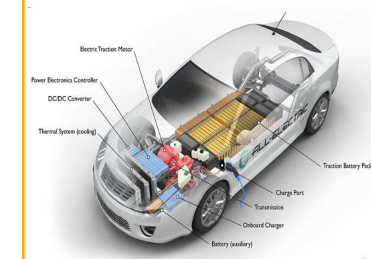
Course

Laboratory

Overview

Focus:

Systems and practical aspects of Voltage regulators, Power supply, Inverters and how are this integrated in the car



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Semester 2
2020

Project Management of Automotive
Systems

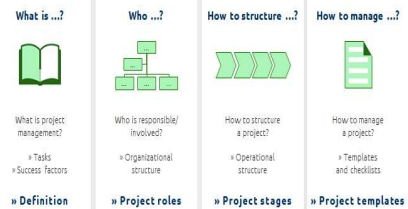
Course

Practice

Overview

Focus :

Complete overview of the project management activities and steps followed to manage a project from technical and resources point of view



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Semester 1
2021

Cybersecurity for Automotive Systems

Course

Overview

Focus:

Complete overview of Cybersecurity aspects as Security standards and Hacking methods in a world where car is connected to everything



Automotive Connected Mobility

Course

Laboratory

Overview

Focus:

Complete overview of connectivity aspects as Inter-vehicle communication, Access technologies, 3rd Party



Signal Processing for Vehicular Technologies

Course

Laboratory

Practice

Overview

Focus:

Complete overview of signal processing for monitoring driver distraction, vehicle lane/control detection/tracking and



Machine Learning for Automotive Systems

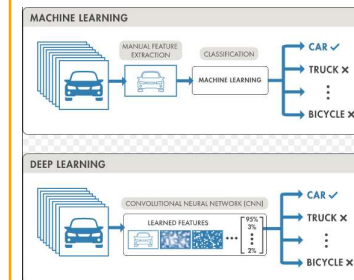
Course

Laboratory

Overview

Focus:

Complete overview of Machine learning models and how are applied in automotive systems



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2021

High Level embedded programming for Automotive Systems

Course

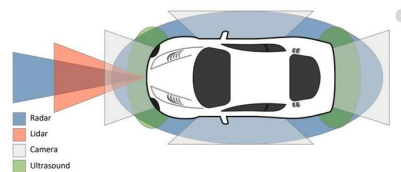
Laboratory

Practice

Overview

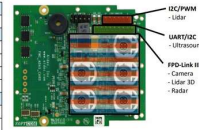
Focus:

Practical aspects of advance programming and complex microcontroller architecture used to build complex car systems (Autonomous Driving)



FMC-ADAS Key Features:

Memory	1x 64-bit E519C0M
Interface	FMC HPC standard connector compliant with VITA 57.3-2010
	5x FPD-Link III - Cameras, Lidars 3D, Radars and Other Sensors
	1x URM32_V4.0 - Ultrasonic Sensor Connector
	1x LIDAR_Link_V2 Connector
Miscellaneous	
Buzzer	2x Oscillator (100MHz and 200MHz)



Advanced Java Programming

Course

Laboratory

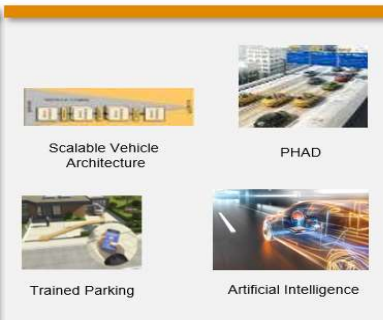
Practice

Overview

Focus:

Practical aspects of advance programming with Java for new mobility technologies

Holistic Engineering and Technologies



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Semester 2
 2022

Reconfigurable Automotive Systems

Course
 Laboratory

Overview

Focus:
 Complete overview of designing and implementing systems that can be easy re-config or re-used over life time

Automotive Electromagnetic Compatibility

Course
 Laboratory

Overview

Focus:
 Complete overview of designing patters to create systems that are compliance with EMC and EMI laws and standards

Functional Safety Reliability of Embedded Systems

Course
 Seminary

Overview

Focus:
 Complete overview and understand ISO26262 to can create safe systems for cars users .

Safety vs Availability vs Reliability

Dissertation work

Practice

Overview