Nr. crt.	Title	Description	Knowledge that will be acquired by student	Requirements	Tests	nr. Stud	hours / day
1	Demo functionality for VW cluster instrument	Based on existing software layers, the student must create software applications in C Language to control the outputs (sound, tell tales, analog pointers and digital display) of the cluster instrument in order to present the capabilities and limitations. The application must run independent of real world inputs such as vehicle data from CAN network or user switches. A virtual input sequence must be defined to cover the full functionality.	Embedded C programming OSEK and system services Basic electronics CAN protocol	AC, 3rd year, basic electronics + C language ETC, 3rd year, basic electronics + C language	Embedded C	1 student	6–8h/day
2	Bluetooth display and gateway	The project covers communication over Bluetooth, UART and CAN. The testboard will be connected to a PC or Smartphone using a FREE2MOVE Bluetooth communication board. The received messages will be printed on a small display attached to the test board. In addition the board will route the messages received from the Bluetooth device to another unit using CAN.	The student will acquire Bluetooth, UART and CAN knowledge along with XML, XSL technologies and internal development and testing process.	Faculty: AC or University, Year: 3 or 4 Knowledge: C, interest on hardware	C + HW	1-2 students	4-6h/day
3	Workstation Reporter Service	Develop, install and test a windows service called reporter that starts automatically with the PC (production area) and collects PC parameters using WMI sending them to a central Oracle database.	WMI, windows services, snmp, Oracle databases, TCP/IP, LAN and WLAN, RFC	Faculty of Computer Science, III year, .NET programming	IT	1 student	6 h/day
4	Module SW development for embedded transmission system	Requirements analysis, design concept, coding in C language and integration in a complete project.	Learning the process and performing an industrial SW for automotive products.	Computer Science, Automation, Electronics and Telecommunications, 3rd year	C + microcontrole re + HW	2 students	6 h/day
5	Reconfigurable Central Display	Create the complete model in ProEngineer or Catia V5 of a Central Display – containing special parts like: Optical Module, Touch Panel, PCB, Clamping Plates, Cushion Tapes, and general sheet metal parts (covers) or brackets (plastic)	experience in Pro Engineer or Catia V5 – surface modeling and sketch based features, technology of manufacturing Sheet-metal parts and plastic parts	Faculty of Mechanical Engineering II or III year of study, knowledge in Pro Engineer or Catia V5	MD	1 student	8 h/day

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6	Semi Automated Integration Test	In the automotive uC systems (with RTOS), there is a need to make integration tests after each integration. To accomplish this task, a new module needs to be developed. The new module should: - determine the runtime of each task from the system - determine the runtime of each interrupt from the system - determine the runtime of each cyclic container from the system - determine the stacks usage - determine the wakeup latencies - determine the system state transitions - output the results on CAN/LIN Beside developing the new module, the CANoe simulation should be changed to inform the tester for the needed outside actions	RTOS (OSEK) GHS Multi environment/ SOFTUNE CAN, CANoe (and/or) HMI	Faculty (one of the following): - Electronics - Automation and Computers - Computer science Year of study: 3 or 4 Required knowledge: - C programming language - uControllers - generalities	C	1 student	8 h/day

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7	CPU usage calculation in automotive systems	In the automotive uC systems (with RTOS), there is a need to observe the CPU load during the integration tests, or even during runtime. To accomplish this task, a new module needs to be developed. The new module should: - determine the percentage of the system running in the background task - first, during a defined time, the number of background task activations of an empty system needs to be determined - this will be considered as 100% in background task (0% CPU usage) - next, during a defined time, the number of background task activations of the real system needs to be determined and now the real CPU usage can be computed - send the obtained CPU usage value, in percentage, on CAN/LIN (define new CAN/LIN message for this) (and/or) - show on the IC display a bar graph and a text with the CPU usage (an additional module should be developed for the HMI part)	RTOS (OSEK) GHS Multi environment/ SOFTUNE CAN, CANoe (and/or) HMI	Faculty (one of the following): - Electronics - Automation and Computers - Computer science Year of study: 3 or 4 Required knowledge: - C programming language - uControllers - generalities	C	1 student	8 h/day
8	Validation of ADAS Sensor Data Acquisition System	ADAS sensors manipulate large quantities of data, which are needed to be stored for later analysis. The existing tool chain is in the process of migration on Windows 7 64 bit platforms. For this purpose, validation of the PC Tools must be defined and realized, using automatic testing as much as possible.	The student will learn about Advance Driver Assistance systems, data acquisition systems, test automation, 64 bit Windows 7.	Computer science related faculty, knowledge of Java script or similar.	C/C++/Java	1 - 2 students	8 h/day

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9	Implement and validate functions for automated tests	Create function using CAPL and XML scripts/code. Support installing and configuring for each new function. Test and validate each function.	SW testing process Working with CAPL and XML	Faculty: Automation and Computer or Informatics or Electronics Year: 3-4 Knowledge required: C/C++ programming, embedded systems knowledge is an advantage.	C	4 students	4/6/8 h
10	AUTOSPAN - Automatic testing of Software Platform in Application projects.	Software platform (low layer software) is an important part of an embedded system, is the layer used as interface between hardware and the application software, closest to microcontroller resources. Shortly, SWP contains real time operating system and hw resources drivers. The layer is developed in a generic way, and it is tested automatically during development, but the tests done after the integration in application projects are still manual, based on a set of tests.	A good perspective about RTOS, automatic testing, improve the knowledge about the sw architecture and programming of embedded systems.	Technical university, at least year 2 finished. Knowledge required: C language (good), microcontrollers (good) , hw knowledge (basic), English (good), xml (basic).	C and microcontrollers	1 student	6 h/day
11	Automatic KPI and Training Survey Reporting	Situation right now: - KPI Reports are being generated using 3 separate views in HPSM. The views are then exported in CSV files and the data then copied into Excel files which compose the actual reports. This is all done by hand and takes up a lot of time. - After each training session, the participants have the possibility to give us a feedback, using the official survey engine. The answers are exported into CSV files weekly and then, the data is copied by hand into Excel files which will become the Training Session Survey. This takes a lot of time. What can be improved: - KPI Reports: can be done automatically. All the data from the CSV files can be imported into the final KPI Reports using Excel Macros or scripts. - Training Session Survey: can also be done automatically.	The student will acquire experience with HP Service Manager and Excel Macros. Furthermore, the student will become familiar with the Support chain and User Training Administration activities.	o College of Information Systems or other technical discipline preferred. Year of study: 2-3-4 o English (fluently), German is a plus. o Excel advanced knowledge required o Visual Basic, Visual C, C++ programming knowledge required o Microsoft Excel Macros knowledge required o HPSM knowledge is a plus.	IT	1 student	6-8 h/day

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12	Project Configurator tool update	Features needed to be implemented: - E-Mail notification to users / administrators after assignment of rights was successfully done - Implement direct MKS Server modification - Reporting on existing rights assignment - Reporting on project rights: resolve current access rights of a project to single users (+ information where this right is coming from) - Improve filtering possibilities - Improve navigation: "jump" to any object when double-clicking it - Improvement: give warning when logging information is empty - Improve overview: re-order columns, sort by column in all Grids	Knowledge in Visual Basic .Net 2005 (or newer) Knowledge in SQL- and Database programming	Knowledge in Visual Basic .Net 2005 (or newer) Knowledge in SQL- and Database programming	Visual Basic	1 student	6 h/day
13	Database for SW label Management	Database for SW label Management Functions: - Generate project unique identifiers - Create a report for existing projects - Send notification emails for project requests and for project creation Web interface for project requests. Project managers should be able to fill in several fields, some of them are predefined. The Administrators will then approve/disapprove/process the requests and the tool will automatically generate a unique number for each project. A menu where we can create an XLS report with all the existing projects.	PHP or ASP.net	PHP or ASP.net	Visual Basic	1 student	6 h/day

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14	Shared resources (variables) analysis in real time systems and code preprocessing for simplification	Extract the variables accessed from different entry points (tasks and interrupts) based on the call tree of an entire body controller project Simplify the code that is passed to static code anslysis tools (PolySpace) by replacing the arrays of constants with functions retuning the value and replacing calls by function pointers with direct calls	Real time embedded systems overview Knowledge of the static code analysis Improvement of development skills Team work in a multinational company	Good knowledge of programming concepts and ability to understand and extend code developed in different languages. Perl, regular expresions and XML/XSLT knowledge is a plus.	C + Java	1 student	6 h/day
15	Backup deletion tool	Tool for deleting backups made on network shares by the DSBackupRestore tool. Tool is able to delete recursively user backups, based on time stamps, detect differential backups and handle large folder structures. Logs activity and has both a GUI and a silent mode.	Working in a large-scale IT infrastructure environment; programming experience; IT infrastructure experience.	Final year of study. Experience with Visual Studio (Visual Basic or C#), at least Visual Studio 2005 (2010 preferred).	IT	1 student	8 h/day

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16	Project Administration Support – process improvement	A Project Administration Support is responsible for the introduction and maintenance of all the data and documents related to the projects being developed in the Passive Safety group in Timisoara. SAP PDM (Product Data Management) database helps you to store and organize the big amount of information related to mechanical design, hardware and software, as well as customer and quality-related activities. Moreover, has to track and update the document versions and material revisions in the organized structures within PDM. PAS is also responsible for the International Material Data System (IMDS) maintenance for the world-wide Passive Safety group. IMDS is a database which stores and handles the information related to the material composition (up to the basic substance level) of the parts used in the design of the new automotive products. It functions both as a storage database for such material datasheets, and as an interface for the data transmission between customers and suppliers along the manufacturing chain. IMDS observes all European regulations regarding the use of restricted/hazardous substances and helps the companies in reporting the conformity of their products towards these regulations. Theme of current project is to study actual process used	Basic knowledge about project administration; Experience of working in a corporate environment; Basic know-how about process definition and improvement measures; Good practice of foreign languages (English and German) – speaking and translations.	Very organized person Good communication skills Basic technical understanding Computer skills (MS Office) English knowledge – advanced level German knowledge - intermediate level	No technical test needed.	1 student	4 h/day
17	Material plastic flow study	To conduct a study in the Finite Element Analysis domain, referring to the materials plastic flow behavior.	ANSYS knowledge, materials proprieties knowledge, team work, schedule creation, project management.	Mechanics Faculty, Last year or Master, FEA (Rezistenţa materialelor)	MD	1 student	5 months with 8 hours/day or 7 months with 6 hours/day

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18	Technical Documentation Writing for SimDM Project (Simulation Data Management in Continental Automotive)	Write technical documentation for the SimDM project by collecting information from the project manager or other people involved in the project (by phone, net meetings…)	• Basic knowledge about project management • How to handle technical work packages and create documentation	• University Degree (Foreign languages, Mechanics, Electronics…) • English Language, excellent writing and speaking • 2nd year for West Univ. or 3rd year for students from Politehnica University • Basic technical knowledge in mechanics and or electronics	IT	1 student	6-8 h/day
19	Modernization Testlabplus	Create reports about the use of the test equipment and Support the TLP database (Oracle) migration Testlabplus is used in different test locations, mainly from QL (Quality Labs). The tool will be rewritten with C# and direct access to Oracle Database. Additional features will be included when reprogramming takes place. The modernization is basis for rollout in NAFTA locations of AQL.	• Knowledge about test and verification processes used in CONTI; • Migrating a database according to the customer requirements;	• Computer Science, 3rd year or • Informatics 2nd year • Database knowledge (Oracle, …) • programming in C#	IT	1 student	6-8 h/day

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20	Automotive Diagnosis Interface using USB and K Line	The Scope of the project is the realization of a diagnosis interface used in the development of the automotive electronics products. This interface shall be used in many projects developed by I CV&AM Timisoara. The project involve: - Gathering the requirements - Defining the circuit diagram and design the PCB using EAGLE 5.11.0 - Ordering components(including housing) and PCB - Assembly of the PCB - Testing	Complete realization of a small electronic product from concept phase until the implementation	- 3rd year of study preferred - Electronics Faculty	HW test	1 student	6 h/day
21	Delivery automatization	Our third party provider, IAV, delivers us weekly some XML files which will be eventually integrated in our final build. This process consists in a pre-delivery, which is validated by Continental side, followed by an official delivery, which is quite time-consuming. The task consists in creating some scripts for the automatisation of this process in order to optimize the check/delivery and to provide the results automatically.	Configuration management Working with 3-rd parties Scripting, working with packages, programming	- Computer science, year 4 - Scripting, computer programming	C++	1 student	4h/day

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22	Integrated Real Time Test Environment using a CAN-based protocol	• Development of a User Interface using Visual Studio(C++ or C#) o Configurable GPIO and Alternate Functions o High Precision Time Management o Multiple/concurrent Precision triggering o Delayed Triggering Management o CAN-based configuration protocol • Development of Supporting Embedded Software (ANSI C) o Test Protocol Command Interpreter o Test Function Development o Test Results Management and Reporting • Project Documentation and Tooling User Manual	• Solid experience in real-time automotive systems • Embedded software development and tools • Testing environments and typical real-time testing issues, • CANoe(CAPL) • Configuration Management practice • Continental-specific work experience	• “Facultatea de Automatică şi Calculatoare”, 2nd-4th year • “Facultatea de Electronica si Telecomunicatii”, 2nd-4th year • Strong programming skills in ANSI C • Basic C++/C# knowledge • Embedded Systems and Electronics basic knowledge	• ANSI C/C++/C#	• 1 Student	6h/day
23	Load box, free input of load value	the purpose of the project is to design and build a resistive load box that can adjust the value of the load based on the free input of the user via keyboard; students will have to develop the block diagram, schematic and layout of the PCB, and finally assemble the components; the value introduced by user should be displayed on 7 segments display, and the uC will have to choose the most efficient configuration for obtaining the desired load value.	schematic development to meet the specification, PCB design and components assembly, embedded design uC embedded programming	-hardware profile : 2 or 3 year of study finished (preferable Electronics); basic knowledge of analog and digital electronics, ECAD, good communication skills -software profile : 2 or 3 year of study finished (preferable Computers); good C knowledge, basic know-how in embedded programming, good communication skills	C	3 (2 hardware students and 1 software student)	8 h/day

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24	Manual SW Testing in the RNS 510 project.	The IIC department providing Software solutions and Hardware solutions for Infotainment systems. The Software packages are collections of java packages .All java packages have to be tested before they are integrated into the System. In order to ensure the quality of the delivered packages the SW Integration Tests and SW Verification Tests has to be performed, according to the quality process. The student will perform manual SW Integration Tests and manual SW Verification Tests during the project.	SW testing techniques	Terminal year at faculty (IT profile), basic knowledge of programming	C++	1 student	6 h/day
25	Automatic SW Testing in the RNS 510 project	The IIC department providing Software solutions and Hardware solutions for Infotainment systems. The Software packages are collections of java packages .All java packages have to be tested before they are integrated into the System. In order to ensure the quality of the delivered packages the SW Integration Tests and SW Verification Tests have to be performed, according to the quality process. The student will perform automatic SW Integration Tests and automatic SW Verification Tests during the project using an internal platform. The student will have also the responsibility to implement the automatic test cases.	SW testing techniques; Test case design.	Terminal year at faculty (IT profile), medium knowledge of programming	C++	1 student	6 h/day
26	Time tracking tool for internal group usage	A tool shall be written that shall allow the users to track own time for different tasks. Tool shall allow at the end of the month to generate a report.	the student will be mentored by experienced people and he will gain experience of working in a project with multiple people	terminal year of study, good knowledge of one programming language that allows windows GUI design and database access (ex: java, c#, ms access)	Java/C #/C++	2 students	4 h/day
27	Module testing for multimedia system	The student shall write additional module tests to the already existing ones for an infotainment system	the student will be mentored by experienced people and he will gain experience of working on an infotainment system	terminal year of study, knowledge of C and C++	C/C++	1 student	4 h/day

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28	MIB E AV&BC – automated tests	Create automatic tests. Perform tests on SW for different variants. Update SW test cases based on requirements documents.	Software test engineer experience Experience with automatic tests Gain automotive knowhow	- Technical Faculty or Computer science from University - Year of study >= 2 - MS Office - Basic electronic knowhow	C, Microcontrolere	2 students	6h/day
29	Tester Tool	Develop a PC application capable of communicating with an Electronic Control Unit via CAN interface in order to issue command requests and evaluate incoming responses. The tool is responsible with interpreting the response data and formatting it for display in a Graphical User Interface. A simple scripting language which allows extending the supported commands should be supported. The tool must also support command lines and must be embeddable in “makefiles”.	Development process Improved Embedded Software/Programming know-how Automotive Communication Protocols	- Final year of study (AC/ETC) - Analytical thinking - Good C++/C#/Java knowledge (including GUI development) - Embedded knowledge is a plus	C, Microcontrolere	1 student	6h/day
30	Light Dimming Control	Develop an embedded application to control the dimming of multiple bulb types/LEDs according to the operating conditions of an Electronic Control Unit used in motor vehicles. The application must be able to take the input information from a knob/ potentiometer and generate a PWM at the output. The application must be able to detect the dimming sense and to take the appropriate action for the corresponding output.	Development process Improved Embedded Software/Programming know-how Software design skills	- Final year of study (AC/ETC) - Analytical thinking - Good embedded C knowledge - Assembler knowledge is a plus	C, Microcontrolere	2 students	6h/day

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31	HCU - Hazard Control Unit	Develop a model based unit responsible with the hazard control function of a motor vehicle. The unit must be capable of monitoring the status of other units by maintaining an active communication via a CAN interface. The application will handle digital inputs and depending on those input and the information received on CAN from the other ECUs will have to control several outputs (e.g. blinking lights, LEDs, other outputs).	Development process Improved Embedded Software/Programming know-how Model based development	- Final year of study (AC/ETC) - Analytical thinking - Basic C knowledge - Matlab/Simulink or LabView knowledge is a plus	C, Microcontrolere	2 students	6h/day
32	CANoe event logging application	An application that is able to log CAN network messages on multiple CAN channels. The application should be able to log CAN messages when the communication baud rate is changing. The application shall allow definition of pass and stop filters The application shall support interface functions to insert text into the created log; this way, existing test environment can use it as an advance logging tool The application shall support a feature to report all received CAN IDs, in order to detect unwanted communication on the CAN bus	The intern will obtain a great and relevant experience in software development and testing. The intern will have the chance to work with the state-of-the-art equipment and technology	- Computer science; year of study 3 or higher; Knowledge in working with threats is required; knowledge in working with dll's is preferred.	Embedded C	1 student	4h/day
33	Mechanical design of components for Transmission Control Unit (TCU)	Create requirements specification, Design a mechanical component for a TCU, Tolerance calculation, Manufacturing workflow specification	Understanding client requirements and transferring them in a technical specification, performing design for a specific component (CAD design, creating technical drawings), performing tolerance calculation, defining a technological workflow	Mechanical Engineering, 3rd year, Technical drawing, Tolerance calculation, Basic knowledge of mechanical technology	MD	1 student	4h/day

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34	Thermal Printer of the New VDR HL (Vehicle Data Recorder Highline): Integration and Redesign	1. Study: The mechanical concept of integration of the today's Thermal Printer in the new VDR HL (Vehicle Data Recorder - High line) 2. Design: Redesign of Actual Thermal Printer Sub-assembly For the new Vehicle Data Recorder HL we need to find the best implementing solution of the Thermal Printer. Based on the adopted solution we need also to redesign it in order to assure its full functionality. The whole mechanical concept shall be developed: - 3D modeling - tolerance calculation - materials selection - strength of material calculation – simple simulations - 2D drawings - Bill of Materials (BOM) - Power-Point presentations of the possible solutions	The student will get to know the mechanical architecture of the VDR product and will go through all the phases of design/implementation of a subassembly in a product	Faculty of Mechanics- TCM or Mechantronics specialization, modeling/drafting/drawings in ProE WF4 Technical knowledge: tolerance calculations, strength of materials, plastic materials and plastic injection process, sheet metal.	MD (Calculare toleranta, rezistenta, desen tehnic, tehnologii mecanice (prelucrarea prin aschiere, injectie mase plastice, stantare)	1 student	4h/day
35	Embedded systems sound simulator	Create a tool which is simulating on a personal computer the sound generation implemented and configured into an Instrument Cluster. The tool will be used for early prototyping of sounds in Instrument Cluster projects with the following use cases: - Convert a raw sound (e.g. wav, mp3) into microcontroller internal structures - Create a raw sound (e.g. wav) from microcontroller internal structures. - Graphical representation of the sound with edit mode	What is an Instrument Cluster ECU – basic features and design http://en.wikipedia.org/wiki/Electronic_instrument_cluster How sound is generated in embedded systems	- Basic knowledge about microcontrollers - C language	C language test, uC test	1 student	4/6/8 h/day

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36	Instrument Clusters development environment adaptation	Improve the actual Instrument Clusters development environment with scripts, small tools that will help perform the integration of software much faster, less prone to errors and more interactive. Examples: - Display the memory consumption and allocation into a graphical manner - Find the allocation in memory of certain functions, variables from a graphical user interface	What is an Instrument Cluster ECU – basic features and design http://en.wikipedia.org/wiki/Electronic_instrument_cluster Details about the C language development environment (compiler, linker)	- Basic knowledge about microcontrollers - C language	C language test, microcontrollers test	1 student	4/6/8 h/day
37	CANoe simulation with integrated offboard diagnostics services	Develop a CANoe simulation which integrates all the features of an Instrument Cluster including offboard diagnostics services. You will have to understand the features available in the CANoe tool, the project requirements and the different standards used and then develop the CANoe simulation by integrating and configuring different features as well as coding small parts in CAPL (specific programming language very similar to C)	What is an Instrument Cluster ECU – basic features and design http://en.wikipedia.org/wiki/Electronic_instrument_cluster Offboard diagnostics standards in automotive and specially in instrument cluster products	- Basic knowledge about microcontrollers - C language	C language test, microcontrollers test	1 student	4/6/8 h/day
38	Automation of test cases	Entering given manual test cases into a sequential automated test tool. While performing the migration, the concepts of test case and test scenario will be properly understood. Involvement in creation of new and interesting test scenarios may also be required.	Getting to understand the ideas behind the automation concept, as well as being able to create scenarios and test a product against customer requirements.	Computer science or Electronics and Telecommunications 3rd or 4th year of study	LABView	2 students	4-6h/day

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39	Implementation of an application for testing a Tachograph system using Virtual Instrumentation.	The student will implement the application in LabVIEW, create tests and the necessary documentation. He will also participate in trainings to get him started in the project.	At the end of the project the student will acquire knowledge about the LabVIEW Development System at a medium level and will understand the protocols and the testboxes we use in System Testing.	Faculty: Automatic Control & Computer Science, Electronics & Telecommunications, Electrical Engineering Year of Study: 4 Knowledge required: - Programming – medium level - LabVIEW – basic level - English - Fluent	LABView, C	1 student	6h/day
40	a) - SPI spy b)- Analysis of test plan based on code coverage (define a method for implementation in a generic project)	a) Updates and fixes are required for a tool that monitor and decodes serial communication (SPI) frames b) Definition of method for performing code coverage using ISystem emulators on LF SW driver	Accommodate with use of SPI communication RTOS use of embedded debug environment	C and C# knowledge	C (C # is a plus)	1 student	4-6h/day

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41	Keyless access system telegram configuration tool	Today, every car has a keyless access system that performs the function of a standard car key without physical contact. Remote Keyless Entry System needs validation before integration in a real car system. For that, we need to simulate the behavior of the real system and the best solution is to generate telegrams using an R&S SMIQ. The project goal is to develop an application that generates a configuration file to be used to send telegrams accordingly customer RF protocol, used cryptology and C RKE developed module. Subject involves designing and developing an application which generates an initialization file which shall be used to send commands to R&S SMIQ. Also, cryptology computations are necessary to be done inside the tool (e.g. XTEA, AES and HITAG2). Communication between application and cryptology service will be done using Windows Services.	Communication protocols basic Microcontrollers knowledge C/C# programming Object oriented programming skills Algorithms	• Faculty: Automation and Computer Science • Year of study: 2nd – 3rd year • Knowledge: 1. C knowledge 2. Object oriented programming 3. Microcontrollers basic	1. C knowledge 2. C# knowledge 3. Testing microcontrollers knowledge	1 student	4 h/day
42	Instrument Cluster Model Based blocks	Using LogiCAD tool you will create generic blocks like Linear interpolation, PT1Filter, Sample and hold, Hysteresis and Stepper motor control that will further be used in different customer projects. You will follow a development process containing phases like requirements analysis, specification, implementation and tests. You will be trained and guided by a LogiCAD expert.	Basics of Model Based Development LogiCAD modeling tool Instrument cluster basic features SW Development steps	- Basic knowledge about microcontrollers - C language - Matlab Simulink knowledge is an advantage	C language test, microcontrollers test	2 students	4/6/8 h/day

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Nr. crt.	Title	Description	Knowledge that will be acquired by student	Requirements	Tests	nr. Stud	hours / day
43	Improve scripts for automatic Module Test with Rational Test Real Time	The student will start with training on topics like SW Development Process and applications for engine management (general overview), SW Verification and Validation Method, and SW Tools used for development and testing. Then he/she will be able to design test cases for improving or creating the testing scripts in order to check the code for different modules. The reports generated by the tool should prove the correctness of the code and the coverage of all branches and decisions.	The test scripts and reports will be archived. The student will achieve good knowledge about SW coding and testing for automotive, embedded and real time SW.	Computer Science/ Automatics/ Electronics; C language programming	C	1 student	6h/day
44	Support news and availability TrayBar	Develop a TrayBar application where some predefined entries could be set on status available/not available together with some information (reason, planning). Check the availability of supporters in the group and update the availability status in the application automatically	Working for a small application in high-level language, Traybar specifics, working in a team	.NET C# or Java/Eclipse know-how	C#, C++ or Java test	1 student	6h/day
45	Testing of Function and SW using Test Automation (TA)	A student will be introduced to SW development process, but the focus will be testing in TA of the Function and SW products from P ES department.	a) Introduction to Python – language used in TA; b) TA3 – test platform used to run TA scripts; c) Introduction to test scripts used to test different functionalities.	Electrical Engineering Faculty(automation, computer science), C Object Oriented programming language, knowledge of testing techniques.	OOP (C++, Java)	1 student	8h/day
46	Programmable CMOS IO switch using SPI interface building on Xilinx FPGA.	This device has to be able for a very flexible connection between one part with another. The connection between one part with the other have to be programmed by SPI interface. This device has to work with 5V and 3,3V CMOS logic.	Improving VHDL language knowledge, improving electronic logic	Electronic or Computer Science student, at least beginner on VHDL programming, good level of knowledge on the electronic logic.	C si Microcontrolere		4/6 h day

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47	Software tool development: Monitoring of the main engine controlling software functionalities.	Into the Power train projects, the functionalities which control different actuators from the engine part should be monitored. This is acquired by installing an independent aggregate which check the correct behavior of the first level of engine management functionalities. This functionality is duplicating some algorithms from first level and tries to be as much as independent (e.g acquisitions is done directly from sensors and not based on the one which is already read). This functionality is called Engine Control Module Above this, in order to assure that this ECM functionality is working correctly, all registers/instructions used by it should be again monitored and assured that they are working correctly. This is done by using a copy of some ECM modules which have a high degree of coverage over instructions/registers. We have in our mind the build-up of a tool which can automatically produce C code based on registers/instructions used into ECM modules. (Automatic by running the tool).	The student will learn about the static architecture of the software, that corresponds to a "EMS2 functionality" (as defined by current Continental rules) EMS2 – Engine Management System He will also improve ASM, C, Java knowledge. Link between theory and practice can be easily discovered during this project development.	Faculty: Faculty of Automation and Computers Year of study: 3th Knowledge required: C language (good), ASM (good), Java (medium)	C language (good), ASM (good), Java (medium)	1 student	8h/day
48	XCP on Ethernet demonstrator	The future transport layer of the calibration protocol will be the Ethernet. We have to consider this technological trend. The project goal is to create a demonstrator to prove the feasibility of the calibration via Ethernet transport layer for our current solution of XCP.	ASAM XCP protocol implementation Ethernet transport layers and data transmission over Ethernet network Testing techniques used in Continental Automotive for a function release	- Automation & Computer Science would be an advantage - Basic knowledge of Ethernet transport layer/protocol - Working with embedded systems/microcontroller controlled systems would be an advantage	C, Microcontrollere (Java optional)	1 student	6-8h/day

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49	Java generation of configurable part of a docx.	Use java environment to generate a configuration based test specification. The EMS3(Powertrain Autosar) environment uses Java for generating the configuration files. It could also be used to generate part of the xmls in a docx file.	Acquire knowledge in Continental Powertrain's Autosar solution.	Knowledge of Java , Office Open XML and VBA.	Java	1 student	4h/day
50	Development of Functional Test specification for Engine Control Units (ECUs)	Contribute to the definition and development of a tool for generating automatically the Functional test specifications which are used in production: understand the test design concept and the functional test process	Knowledge about ECU manufacturing and testing in the production line; ECU modules design and functionality	- Electronics and Telecommunication Faculty - Good MS Excel knowledge (macros) - Good Visual Basic knowledge	Visual Basic	1 student	6-8h/day
51	Embedded Control Application SW + HW : city parking control and monitoring	System description : city parking monitoring project is an automated parking place supervisor that will allow cars to enter in the parking place only if there are free places. Upon entry a designated free space is assign to the car, and the entry time is stored. Also the free spaces information is updated. The system should allow information regarding the status of the parking to be sent wireless to a central monitoring station/ satellite displays panels. From central monitoring station different report should be created (e.g occupied percentage per day,week,month,..). Also it should be possible to configure different hourly rates per day/night /special licenses. Applicative part : dedicated embedded board will be design and implemented and SW implementation for this board. The summer practice can continue with a diploma project	System understanding (requirement based) Embedded Control system implementation HW +SW	- AC , ETC faculties 3rd or 4th year of study - C programming on embedded systems, - 32bit microcontrollers (SW + HW), real time environment, , - DC/stepper motor controlling.	C, Microcontrolere	1 student	6-8h/day

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Nr. crt.	Title	Description	Knowledge that will be acquired by student	Requirements	Tests	nr. Stud	hours / day
52	Unitary test – Optimization of the generic unitary test	Development of a tool for verification and optimization of test cases in order to help detect redundant test cases inside unitary test files (ptu). Implementation of a generic module test file starting from the existing particular test file.	Acquiring basic skills in System Design Automation Developing test methods for a single software module	UPT – AC Faculty, II, III year of study, C programming medium skills, problem solving skills by proceeding in an analytical and structured manner	C	1 student	6h/day
53	i. Update the Multiple Injection Tool for Injection Setpoints; ii. Design and implement a predictive model based on adaptive ARX structures	i. Become familiar with the function development for the Combustion Management and Injection Setpoints aggregates. Here we have 4 aggregates: - one used for Combustion Modes Management (CBMD); - three used to calculate the setpoints for Fuel Mass (FMSP), Injection Phasing (INJP) and Fuel Pressure (FUSP). To ease the calibration process and to make a quick analysis of different calibration sets one can use a tool that parses all the calibrations and displays in different graphical formats the connection between combustion modes, combustion submodes and injection maps used. The scope of this part is to produce a tool based on a Matlab script that helps the developer by displaying the above mentioned information. ii. Design a predictive model based on adaptive ARX structures using Matlab/Simulink based toolboxes (SDA). - Adapt the model to the case study requirements - Implement the model using the Matlab/Simulink SDA-RPT toolbox on a dSPACE DCI-GSI eRPT system.	Understand the model based design concept and how it's implemented on a real-time environment. i. Understand Combustion Management strategy and the calibration process. Become familiar with the software tools used in the calibration analysis process (INCA, Matlab scripts). ii. Get used to work with Matlab/Simulink SDA- RPT toolbox	a. Faculty, skills, technical knowledge Faculty of Automation and Computers / Electronics and Telecommunication, 3rd year of study, Matlab scripts. b. Technical test which needs to be administered: Matlab/Simulink and Control Systems Theory	Mathlab, C, Control Sistem	1 student	6h/day

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54	TCT – Test Communication Tool	TCT was developed as a PC tool that can be used to communicate with the ECU counterpart. Its scope is to provide a user interface for building and storing a test script formed by STP commands. Also it can save a test log, which can be used for future analysis. The student will have to implement software packages in C#, as parts of TCT platform.	Get basic knowhow about ECUs resources Get basic knowhow about test communication protocols Get advanced knowhow about some 32 bits class microcontrollers (from Freescale and Infineon) Experience C# development	- Electronics and communications or Automatics - 2nd or 3rd study year - C medium knowledge, C# experience is an advantage - Basic knowledge about microcontrollers	C, C#	1 student	8h/day
55	Automated CAN communication testing system	Aim of the project is to develop a testing environment (PC Tool + Embedded software Library) that enables automated testing of communication drivers and protocols of various automotive projects. Environment consists of two parts that communicate with each other via CAN interface. One part will run on a 32-bit PowerPC embedded platform and the other part will run on PC, having a user-friendly interface. The student must design both embedded and PC components and to generate a series of test cases in order to prove correct functionality.	Student will gain: • Advanced 32-bit PowerPC microcontroller and C knowledge. • Good knowledge of high-end communication protocols, libraries and tools used in automotive industry. • Experience working on top projects for famous automotive clients. • Good practice of programming knowledge both high and low-level.	Technical university student 3rd or 4th year student is a plus Good C programming skills Good microcontroller programming skills Any experience using GUI (Windows Forms or similar) is a plus Willing to work intensively to improve technical skills	Embedded C and microcontroller test	1 student	6h/day

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56	Embedded CAN communication test system	Aim of the project is to develop an advanced CAN testing environment for automated testing of CAN communication stack. The embedded CAN tester will use a powerful 32-bit PowerPC controller for generating different communication patterns which will be sent on different CAN channels and will evaluate the received responses. The project consists of the following components: • PowerPC embedded test platform for loading and executing the test cases and generating corresponding reports. • PC program, with user-friendly GUI, for creating and loading test cases into the embedded CAN tester and receiving test reports from the CAN tester. The embedded system must be capable of running intensive CAN tests in real-time.	Student will gain: • Advanced 32-bit PowerPC microcontroller and C knowledge. • Good knowledge of high-end communication protocols, libraries and tools used in automotive industry. • Experience working on top projects for famous automotive clients. • Good practice of programming knowledge both high and low-level.	Technical university student 3rd or 4th year student is a plus Good C programming skills Good microcontroller programming skills Any experience using GUI (Windows Forms or similar) is a plus Willing to work intensively to improve technical skills	Embedded C and microcontroller test	1 student	6h/day
57	Advanced CAN Bootloader, with diagnosis support, for Freescale HCS08 microcontroller family	The projects goal is to create a complex CAN bootloader program for the HCS08 microcontroller family. The project will consist of 4 steps: 1. Implementation of a flash driver for HCS08 devices internal flash 2. Implementation of a CAN driver for HCS08 devices 3. Integration of CAN driver and flash driver into the UDS, KWP2000 and XCP protocols 4. Creating PC test application and testing of the flash bootloader program	• CAN communication concepts • Automotive Diagnosis Concepts(KWP2000, UDS, XCP) • Freescale HCS08 architecture knowledge • Bootloader Concepts • Advanced microcontroller programming skills	- Technical university student - 3rd year student is a plus - Good C programming skills - Good microcontroller programming skills - Willing to work intensively to improve technical skills	Embedded C and microcontroller test	1 student	6h/day

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58	Advanced PowerPC I/O module	Project is based on a 32-bit PowerPC microcontroller platform with multiple configurable input/output ports. An application must be designed which is able to control different signals (e.g. frequency measurement/generation) based on input received over CAN messages. The application will be controlled over CAN using CANape software. Scope: development of generic automated I/O tests.	• 32-bit Power PC Architecture • CAN communication • XCP protocol • Vector tools • Automated testing concepts	• technical university student • 3rd year student is a plus • good C programming skills • good microcontroller programming skills • basic electronics knowledge is a plus • willing to work intensively to improve technical skills	Embedded C and microcontroller test	1 student	6h/day
59	2nd Generation Embedded Real Time Operating System automated test environment	An automated test environment must be created for testing the microC/OS-II operating system. Test cases will be implemented in C and will be integrated in an existing project. The output of the test results must be provided using CAN communication and XCP protocol and must be interpreted using PC tool.	Real Time Operating Systems (microC/OS-II) 32-bit PowerPC architecture CAN communication XCP diagnosis protocol	Technical university student 3 rd year student is a plus Good C programming skills Good microcontroller programming skills Real time operating system knowledge is a plus Any experience using GUI (Windows Forms or similar) is a plus Willing to work intensively to improve technical skills	Embedded C and microcontroller test	1 student	6h/day
60	Reuse status of platform modules in customer projects	Software reuse results in improvements in quality, productivity and reliability. It also provides a reduction in redundant work and development time. An existing application will be enhanced to automatically, based on a script, output the following information: - calculating how many projects are reusing the platform SW modules; - checking whether customer projects are using the latest bug-free platform modules	MS Office (Word, Excel) Scripting (Perl, Visual Basic) Configuration Management	- AC - Informatics (UPT) - Informatics (UVT)	Visual Basic	1 student	4h/day

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61	Knowledge Management Database	To create a web based application for uploading different Work Products (Estimations, Project Plans, Budget Applications, etc) belonging to a project To filter existing information using defined criteria, specific to each project (e.g. type of the project, duration, begin-end date) To create statistical information(e.g. reports, charts) based on uploaded data To get the information from different projects after applying the above filters (e.g. Estimation sheets from Platform Projects, Project Plans from Customer Specific Projects)	MS Office (Word, Excel) Database Application Web Based Application	AC - Informatics (UPT) - Informatics (UVT)	Java	1 student	4h/day

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62	Visual Basic Application for object reviews generation & tracking	2011: An application which automates the process of object review organization and has the following functionalities: - an interface to the user which requests all the information needed in the next steps; - creates a folder with a required name which is generated from the information introduced at the previous requirement; - generates a word file with same name as the previously mentioned folder; - sends an e-mail invitation created based on the information introduced in the user interface; - creates a consolidated word file with the information from all word files from the folder (see point 2); - maintains a status with all object reviews for a project; The application shall be used by persons from different locations working on a project. The settings for the application shall be made on each project at the beginning of the project. 2012: New features and bugfix on the above application.	C# Visual Basic for Applications (Word, Excel, Access) MS Office (Word, Excel)	- AC, Informatics (UPT) - Informatics (UVT)	Visual Basic	1 student	4h/day
63	70" Multi TFT Arena Panel	Design a system which is able to supply and control a grid of displays. The purpose is to create a functional display panel (nearly 70'') with a proper power source unit and correct signal routing.	power supply basics, power consumption analysis, interferences theory, layout, FPGA basics	3rd year of Electronics with general Electronics and Layout, general power dissipation calculation, ECAD Schematic Tool	HW test	1-2 students	8h/day
64	Performance evaluation and improvement of low power audio amplifiers	Measurements and characterization of 3 audio amplifier circuits; performance evaluation an comparison study; find possible improvements in current designs;	audio amplifier basics, class A, AB and D configurations, typical audio measurements	Analog electronics, amplifier topologies, basic audio amplifier calculations, DACs	HW test	1 student	8h/day

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65	Design an embedded system based on a FPGA controller	Create a automated test system which is able to process images using a FPGA system.	Video processing algorithms, system testing systems	general electronics design, VHDL programming, Labview	HW test	1 student	8h/day
66	Memory Analyzer	Create an application which will analyze Digital Tachograph memory. Requirements: - open .HEX file, memory dump, .MAP file - analyze files and display defined interest points (e.g. events list) - output results in different format files (XML/CSV/HTML) - create an graphic interface Prerequisites: - already available scripts	Knowledge in C++ / C# Develop an application using and defined process	Faculty: technical university (UPT, Informatics) Year of study: 2 or 3 Knowledge required: basic knowledge of C++ / C#	C++/C#	1 student	4/6 h/day
67	Test (quiz) Generator	Create an application which will generate tests (quiz) from a defined database available on the server. Requirements: - Server setup - Tests to be sorted based on a defined complexity level and based of discipline - Offer the possibility to take the test in printed form or via an web browser - Test/Quiz shall be automatically corrected in the case that the test is taken via web browser - Automatically send email with test results	Knowledge in C++ / Java Develop an application using and defined process	Faculty: technical university (UPT, Informatics) Year of study: 2 or 3 Knowledge required: basic knowledge of C++ / Java, database	C++/Java	1 student	4/6 h/day

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68	Trace Buffer Analyzer	Create an application which will analyze Digital Tachograph states of execution. Requirements: - be able to open ~100 trace buffer files (files in which are recorder the states). - search for defined bug patterns - apply user configurable filters, save and load filters - display results - create an graphic interface Prerequisites: - already available scripts	Knowledge in C++ / Java Develop an application using and defined process	Faculty: technical university (UPT, Informatics) Year of study: 2 or 3 Knowledge required: basic knowledge of C++ / Java	C++/Java	1 student	4/6 h/day
69	Wireless Data Protocol Analyzer for Vehicle Key ID	The current project shall implement a tool that shall be able to receive/transmit/analyze the communication protocol between Vehicle and Key data. The concept is to have an external tool controlled by a PC application. The thesis contains 2 major parts: A) 1 student - Create PC SW Application for controlling the device in Visual C# and for data processing. B) 1 student - Create External HW device that is able to perform LF/ RF raw data transmission and reception The project can be continued (after summer practice) as a diploma project.		A) PC SW Application – 1 student Faculty: UPT (Computer Science/ Automatics/ Electronics and Telecommunications) Skills: work as a team, creative, fast learning Technical knowledge: Visual C#, C B) HW Device – 1 student Faculty: UPT (Computer Science/ Automatics/ Electronics and Telecommunications) Skills: work as a team, creative, fast learning, Technical knowledge: C, Microcontrollers	A) C#/C B) C + Microcontrollere	2 students	4/6/8 h/day

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70	Near Field Communication Application for Car Key ID	Develop a system which uses the Near Field Communication (NFC) technology for information exchange between a Car Key ID and Android Smartphone. The diploma thesis project implies the creation of: - NFC application on the Car Key ID – embedded C - NFC application on the Android Smartphone – java. The project can be continued (after summer practice) as a diploma project.	Android application development knowledge - embedded programming knowledge - Microcontrollers knowledge.	Faculty: UPT (Computer Science/ Automatics/ Electronics and Telecommunication) - Technical knowledge and skills: - ANSI C programming knowledge (embedded) - Java programming knowledge	Embedded C , Java	1 student	4/6/8 h/day
71	Tachograph card creator	Create an application which will populate an empty tachograph card with the needed data. Requirements: - Read existing default empty files (.bin) representing a tachograph smartcard - Write the input data (received as an string) in the correct location respecting the each file structure and integrity - Write the output file as a .bin file Prerequisites: - Interfacing programs already exist	Knowledge in C# / C++ / OOP Smartcard basics Develop an application using a defined process	Faculty: technical university (UPT, Informatics) Year of study: 3 Knowledge required: basic knowledge of C# / C++ / OOP	C# / C++ / OOP	1 student	4-6 h/day
72	WU testing equipment	To work out a layout based on given schematic, to populate the components, make verification, design a housing for it and do final assembly.	Electronics – general, layout experience is a must, some knowledge of mechanical prelucration and design.	ETC. year 3,4 Zuken.	MD	1 student	4h/day

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73	Wizard for project configuration for DCM and MEM stack.	Wizard application development that helps the integrator to correctly configure and integrate a BSW module into a project.	Autosar modules configuration and usage.	Knowledge: ANSI C + Java (intermediate level)	C+Java	2 students: 1 student for DCM Wizard and 1 student for MEM Wizard.	4/6/8 h/day
74	Java GUI for unit test framework	Extend current testing framework to provide a GUI (Graphical User Interface). Tests are executed on the target device and currently are launched from command line. Requirements: - choose tests for a specific project;	Java Eclipse plugin development process for a software product testing process	- AC - Informatics - Year of study: 3/4 - OOP (Object Oriented Programming)	OOP -> Java/C++	1 student	4/6/8 h/day
75	Monitoring worldwide email infrastructure in Continental Automotive	elements to be considered are: -worldwide coverage -different server types -dependencies to other services, etc.	Participant will learn how the Email infrastructure works in an Enterprise environment. The email software used is Lotus Domino server and Lotus Notes client. Monitoring software	Basic server Operating System knowledge. Monitoring concepts. SNMP. Email concepts	IT	1 student	6h/day
76	Display content converter tool	Background: The Commercial Vehicles Instrument Cluster usually has a display for providing information interface to the driver. Several display types are supported: dot matrix or TFT displays. Project proposal: The internal display RAM buffer can be read via diagnostic services. The buffer represents the internal display representation of what exactly is drawn on the display. The format for the internal memory is specified by the supplier. A tool must be created to read the data buffer and convert it into Windows bmp format in order to be checked on the PC side. Both above variants must be supported: Dot matrix and TFT.	pure software engineering (.NET, C, C++, XML) - embedded systems (automotive systems, CAN, graphical embedded systems)	- Technical university (ETC, AC) - C++, XML language, basic microcontroller, CAN	C++, Microcontrollere	1 student	4/6h/day

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77	CAN simulation for testing external graphics mode	Background: In some Commercial Vehicles there is the configuration that the Body Control Unit represents the Functional HMI and the Instrument Cluster represents the Graphical HMI. The BCU controls the information to be displayed and the IC controls the drawing on the display. All information about object types which can be displayed is generated inside a binary file which usually is interpreted by the BCU. Communication between the 2 ECUs is done via CAN messages. Project proposal: A CANoe simulation should be available for replacing the	pure software engineering (.NET, C++, XML) - embedded systems (automotive systems, CAN, embedded systems automated test environments)	- Technical university (ETC, AC) - C++, XML language, basic microcontroller, CAN	C++, Microcontrol ere	1 student	4/6h/day
78	BSK Macro library	The proposal is to create a library of BSK macros for Diagnosis support and automated tests. Some of the requirements are: • Get knowledge about the VW clusters. • Get knowledge about the UDS standard. • Get knowledge about the BSK tool, RBST simulation and CAN simulation. • Analyze the list of Diagnosis Services and propose a list of BSK Panels to cover them. • Design each Macro panel and create them. • Test the resulted BSK macros. • Create a User Manual document. • Make a presentation of the BSK Macro library. • Get feedback from colleagues and make optimizations and improvements. • Release the final version.	C Programming language test. Logical thinking test.	Faculty, skills, technical knowledge Programming knowledge. Creativity is a plus.	C Programming language test. Logical thinking test	1 student	4h/day

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79	Cluster reflection on a CAN panel	The proposal is to create a CAN panel which should display the same infos like the real cluster but reading them from the real cluster using diagnostic services. The requirements are: • Get knowledge about the VW clusters. • Get knowledge about the UDS standard. • Get knowledge about the BSK tool, RBST simulation and CAN simulation. • Analyze the list of Diagnosis Services and see which services can support this panel. • If the content of graphical display can not be retrieved with a DIA service, check the possibility of getting this in another way. • Design the CAN panel and write the CAPL code for it. • Test the resulted panel against the real cluster and against the real inputs from cluster. • Create a User Manual document and make a presentation of the Panel. • Get feedback from colleagues and make optimizations and improvements. • Release the final version.	C programming Test. Logical thinking test.	. Faculty, skills, technical knowledge Programming knowledge. Creativity is a plus.	C programming Test	1 student	4h/day

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80	Develop a Trip Computer Simulator for Hybrid cars	Modern car manufacturers are all producing (or planning to do so) hybrid cars. For these cars, the algortihs related to Trip Computer are not only interesting, but also quite a programming challenge. We would like to have a SW simulator to compute the main Trip Computer functionalities, base on the two tank approach of the hybrid cars. The task will be: - To understand the usual functionalities of the modern TCOs (like Avg Speed, Avg Consumption, Range and so on) - To get basic knowledge of the algorithms behind them - To get basic knowledge about Hybrid Cars - To implement a SW Simulation to compute all these items at a given moment, based on adjustable input values (like speed of the car, tank content, current consumption, type of fuel used at a given moment).	C test, Logical Test HighLevel(C++)	Faculty, skills, technical knowledge SW programming knowledge, C is preffered	C test, Logical Test HighLevel(C++)	1 student	4/6h/day

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81	XML Model and SW simulation for an instruments cluster	The goal is to conceive a PC simulation for an instruments cluster. The look and feel should be modeled in XML and the graphical representation should be a window of a defined dimension that resembles the display of a regular instruments cluster. Some of the requirements are: • Define the structure of the XML model (DTD or XML Schema) • Define the content of the model itself based on a cluster with reduced functionalities • Validate the XML model • Generate the configurable part of the simulation source code from the XML model • Implement the entities that build up the model in a object oriented style • Create a graphical representation of the model (this includes the creation of the graphical resources themselves) • Make a presentation of the XML model defined and of the simulation project • Make a live demonstration of the simulation	[C test] (optional) HighLevel(C++)	IT related faculty Good knowledge of OOP concepts XML and XML processing methods (XSLT is an advantage) Experience with graphical rendering on Windows platforms	[C test] (optional) HighLevel(C++)	2 students	4/6h/day
82	GDF for VW MQB MJ14	diagnosis tool for analisys based on EOL programming takeover from previos MY (implementation of new functions and update of existing ones) test on device		ETC / LABView, general programming, general engineering / embeded automotive	LABView, C, embedded C	1 student	4h/day

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83	Sequential tool for for building VW MQB MJ14 prototypes (uTAS based) – Assembly phase	diagnosis sequential tool for building an IPC based on EOL programming - must ensure all necessary inputs for the Assembly phase - takeover from previos MY (implementation of new functions and update of existing ones) - test on device		ETC / general programming, general engineering / embeded automotive	C, embedded C	1 student	4h/day
84	Sequential tool for for building VW MQB MJ14 prototypes (uTAS based) – Final phase	diagnosis sequential tool for building an IPC based on EOL programming must ensure all necessary inputs for the Final phase takeover from previos MY (implementation of new functions and update of existing ones) test on device		ETC / general programming, general engineering / embeded automotive	C, embedded C	1 student	4h/day
85	GDF for VW Roadmap MJ14	diagnosis tool for analisys based on EOL programming takeover from previos MY (implementation of new functions and update of existing ones) test on device	ProEngineer or Catia V5, kinematics, optical and general mechanical engineering skills	Faculty of mechanics	MD	1 student	4h/day
86	Mechanical design of a Head up Display	Mechanical design of an head up display used in automotive industry potentially for low cost cars. Develop the optical and mechanical concept for image projection on the windschield. Design in ProEngineer the assembly and simulate by animation it's functionality. Realize the 2D drawings for	ProEngineer or Catia V5, kinematics, optical and general mechanical engineering skills	Faculty of mechanics	MD	2 students	4h/day
87	Mechanical design of a flying dispay	Mechanical design of an flying display used in automotive industry potentially for primar customers. Develop the mechanism to open/ close an cavity for the I Phone and USB connection. Design in ProEngineer the assembly and simulate by animation it's functionality. Kinematic calculation of the	ProEngineer or Catia V5, kinematics, general mechanical engineering skills	Faculty of mechanics	MD	1 student	4h/day

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Nr. crt.	Title	Description	Knowledge that will be acquired by student	Requirements	Tests	nr. Stud	hours / day
88	Validation testing of electrical motor control systems used for power train transmission control units.	Hardware and system bench validation tests carried out at each sample step which includes: basic functionality tests, in depth tests for sensitive areas and creation of lab reports for the performed work. Specific tools for this task will be used like: oscilloscope, power supply, bench instruments, wave generator and project specific connection wiring and load box. Results are used by hardware responsible for proving and improving the electronic design.	Student will acquire knowledge in hardware testing, get familiarized with test bench equipment and functioning of electronic under test, get used with designer team, generate lab reports.	3rd year (preferred), knowledge in electronics design evaluation, testing of electronic circuitry, lab tools, office knowledge to write lab reports.	HW test	2 students	4/6/8 h/day
89	B2B Portals robot	Need an application to automatically connect to portals, web applications, and navigate through portal, perform different actions like upload/Download files	Java, Web Service, html	AC, Informatics Year :3-4 Knowledge: Java	Java	2 students	4/6/8 h/day

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