

Crt. no.	Project name	Category	Project description	Topics the students need to know	Difficulty	Designated mentor	Department
1	Strategic Integration of A.I in Transforming Purchasing in Multinational Companies: Unifying Data Analysis, KPI Contracts, and Cutting-Edge Negotiation Techniques	Business Administration	<p>AI in Purchasing Overview:</p> <ul style="list-style-type: none"> > Introduction to AI's role in multinational purchasing activities. > Significance of AI for data analysis, KPI contracts, and negotiations. <p>AI Implementation and Impact:</p> <ul style="list-style-type: none"> > Exploration of AI's influence on data analysis, KPI optimization, and contract management. > Showcasing AI's role in enhancing negotiation strategies and decision-making. <p>Challenges and Opportunities:</p> <ul style="list-style-type: none"> > Discussion of challenges like privacy and bias in AI adoption for purchasing. > Identification of opportunities and benefits through real-world case studies. <p>Future Implications and Recommendations:</p> <ul style="list-style-type: none"> > Conclusions drawn from research on AI's effectiveness in purchasing. > Insights into potential directions for advancing AI integration and optimizing procurement processes in multinational companies. 	Economic Analysis, Domestic and International Trade, Industrial Design, Supply Management, Logistics Management, Management Information Systems, Economic Statistics	Medium	Bratucu Monica	Purchasing
2	Modular fixture for different pressure valve tests and hydraulic validation (back to back comparison)	Engineering	Create fixtures which will allow to interchange different valve components, allowing easy component assembling and dis-assembling, for testing various valve configurations	CAD Mechanics / hydraulics Machining processes	Medium	Andra Paunescu	R&D
3	Spare parts and consumables management application	Programming	Develop a web based application that manages spare parts and consumables in a testing laboratory	Programming (web based)	Medium	Bogdan Cracaoanu	T&V
4	Water operated automotive engine	Engineering	Development project: define obstacles, challenges, advantages. Can it be done? What is the percentage of water that can be used to drive the engine alongside the fossil fuel? 10%? 50%? 100%? What the is state of water? Gas? Liquid? Split?	Mechanics CAD Simulation	High	Catalin Atanasiu	R&D
5	Electric off-road Lego chassis	Engineering	Electric Lego offroad chassis with 1, 2 or 4 motors and arduino development board used for individual control, in order to overcome obstacles and figure out which is the best way to drive the motors in order to move forward and keep the chassis balanced. Small test bench with different scenarios is needed.	Mechanics Programming (microcontrollers)	High	Catalin Atanasiu	R&D
6	SCR aftertreatment system for synthetic diesel	Engineering / Science	Study the fesability of the existing SCR system for sintetic diesel engines (dosing system, reagent chemical composition)	Calculation / Simulation Chemistry	Hard	Cristian Udrea	R&D
7	SCR system for industrial engines	Engineering / Science	Reaserch and development for adapting the SCR passenger vehicle module on Tractor, LCV and Defense engines (dosing system, reagent chemical composition)	Calculation / Simulation Chemistry	Hard	Cristian Udrea	R&D
8	Hydraulic performance measurement device for cooling circuits	Engineering	Design, build and test an equipment for performing hydraulic performance tests (pressure drop, pressure pulsation and burst pressure) of cooling plates or circuits used in High Voltage Electrical Vehicle products	Electrical Hydraulic Automatization DAQ Simulation	High	Florin Nicolau	T&V
9	Software application for a data acquisition, control and calibration of a fuel leakage test bench	Engineering	Develop a software interface (e.g. Labview) for data acquisition, control and calibration of a fuel Leakage test equipment. Understanding the Leakage tester functionality. Create a stand alone application that interfaces and controls the equipment.	Programming Hardware	Medium	Florin Nicolau	T&V
10	Venturi effect suction pump (Jet Pump) optimization	Engineering	Jet Pump topology optimization for maximizing efficiency; study on nozzle location and form deviation effects on the JP performance; applying DFSS tools	CAD FEA DOE Six Sigma	Medium	Marius Rosca	R&D
11	Vibration testing golden sample	Engineering / Science	Create a benchmark master sample that will be used for vibration equipment with adapter plates on following frequencies: 50-100-200-500 Hz (fixture standalone must withstand minimum 2.5 Khz with each adapter plate for each frequency required). Vibration will be tested individual on X / Y and Z axis	CAD FEA	Easy	Silviu Ghinea	T&V
12	Aging effects of urea (Ad-blue) on materials	Science	Creating a study to observe how different materials used in the SCR tank perform under influence of Ad-blue exposed to different environmental scenarios. Identify materials used in the SCR tank Take into account and measure how the Ad-blue affects the targeted materials under environmental constrains Research ways to improve corrosion resistance by surface treatments or by selecting new types of materials Implement one new improvement and verify if it works in real life	Materials Chemistry	Hard	Silviu Ghinea	T&V
13	DC busbars for High Voltage Vehicle Applications	Engineering	Create and size a DC busbar for inverter and e-motor applications that can withstand up to 2000 A overcurrent	CAD Simulation Materials (mechanical and electrical behavior)	Hard	Stefan Huluta	R&D
14	Using FMEA method for process optimisation (P-FMEA)	Engineering	Create a PFMEA for an automotive component testing lab	Statistics Process mapping FMEA	Medium	Stefan Tanase	R&D

! Studenții interesați sunt rugați să trimită CV-ul lor la adresa de e-mail: brasov@vitesco.com