Nume cadru didactic

Nr.crt.	Titlu lucrare	Scurta descriere	Cerinte	Nivel (licenta/master)
1	**Cloud-edge architecture for robots**	Literature review of suitable solution, development and implement a cloud-edge architecture using microservices and big data processing platform	Cloud computing, OOP, Kubernetes, Cassandra, Hadoop, Spark	**Licenta/master**
2	**Securing Cloud applications**	The thesis aims at developing an innovative Windows wrapper for a Filesystem in Userspace (FUSE) with an HDD firewall resorting to the hardware built-in capabilities, and the software libraries, of the SEcube™. The system developed will then be combined with a file-sharing system (e.g., Dropbox) to deliver a powerful secure and reliable cloud system.	C/C++, middleware and SDKs for microcontrollers, knowledge about cybersecurity primitives and methods and network-based communication, Cloud computing	**Licenta/master**
3	**Securing IoT Communication Protocols**	secure communication between IoT devices, leveraging on the SEcube™ platform	C/C++, middleware and SDKs for microcontrollers, real-time messaging and XMPP-based servers, knowledge about cybersecurity primitives and methods and network-based communication	**Licenta/master**
4	**Secure environment in order to enable a real-time message system**	Develop a key and configuration manager for user profiles for the security gateway and proxy application. The system can then be combined with instant messaging (IM) and groupchat server (e.g., Openfire) to develop a secure real-time messaging	C/C++, middleware and SDKs for microcontrollers, real-time messaging and XMPP-based servers, knowledge about cybersecurity primitives and methods and network-based communication	**Licenta/master**

		system.		
5	**Remotely Operated Car with Live Camera Feed**	Literature review, Create and develop an Android operated robot	C/C++, Matlab, NodeJs, RaspberryPi	**Licenta/master**
6	**Remotely Operated Car with motion sensors**	Literature review, Create and develop an operated robot using BM1055, BMM150 and BMA253	C/C++, electronica, Matlab, NodeJs, RaspberryPi	**Licenta/master**
7	**IoT in E-Health**	Develop an instrument in order to monitor the vital signs of a patient	electronics, embedded programming skills	**Licenta/master**
8	**Kafka Kubernetes Cluster on Raspberry Pi**	Helm installation of the Kafka into a Kubernetes Cluster on running on Raspberry Pi	Kafka (Big Data), Kubernetes, Linux, Docker	**Licenta/master**
9	**Spark Kubernetes Cluster on Raspberry Pi**	Helm installation of the Spark into a Kubernetes Cluster running on Raspberry Pi	Spark (Big Data), Kubernetes, Linux, Docker	**Licenta/master**
10	**Availability of IoT Services**	Literature review, Create and develop an algorithm in order to compute the availability of a IoT system	Reliability and diagnosis	**Licenta/master**
11	**Development of a Car to Car communication device**	Developing a complete solution for car-to-car shortrange communication. We can have different options: • via Internet • direct short distance communication We should take into consideration: • reliable data transport • compression encryption	• SW/HW Development • C++ / Arduino / RaspberryPI • Networking • Communication protocols *Thesis subject in collaboration with Porsche Engineering*	**Licenta/Master**
12	**GPS reliable live location**	Create a device and software	• SW/HW Development	**Licenta/Master**

		module that will read GPS data and continuously compute valid data while passing through environments without GPS connection.	• C++ / Python/ RaspberryPi / GPS • *Thesis subject in collaboration with Porsche Engineering*	
13	**Indoor localization techniques**	Literature review, Create and develop an algorithm in order to detect the indoor localization	Electronics, C/C++	**Licenta/Master**