

## Nokia Romania - Summer Practice Projects 2021

Nokia Romania is looking for enthusiastic and creative students for summer practice projects to enhance their future professional career. Do you want to put your knowledge to work, add new skills and contribute to something big and extraordinary?

Index	Summer Internship Project Title	Short Description of the Project	Technical Requirements to complete the task	Department	Details (number of students, hours/day, period available)
1	<b>Testing 5G cloud</b>	Our team focuses on testing functional aspects of software and ensures that new features are working in accordance to requirements with high level of quality defined by acceptance criteria. Tests are both manual and automated and are performed on both simulated and real HW. We are responsible of 3 different types/levels of testing.	Students that really want to do something practical, are quick learners and want to be involved and challenged	<b>Mobile Networks</b>	3-5 students, 6h/day, period during summer holiday to be defined together, after selection
2	<b>Test Automation and regression campaign</b>	Team focuses on creating test automation scripts using Robot Framework and testing for 2G, 3G, 4G, 5G programs	Students that like software testing, on hands learning. Python understanding is a big plus	<b>Mobile Networks</b>	4 students, 4-6 hrs per day, July - oct
3	<b>RF Sharing Principles in Newest Radio Technologies</b>	Testing the RF Sharing applied to latest technologies in Nokia "oven": 4G, 5G.	Telecom basic/automation basic/Linux basic	<b>Mobile Networks</b>	2 students, 4-6 hrs per day, July - Sept
4	<b>5G Technology</b>	5G - software developing + testing	C++, Testing, Algorithms	<b>Mobile Networks</b>	1 student, 6h/day
5	<b>Problem Report ML Similarity Analysis</b>	WEB API for existing an ML application regarding faults reports	Django/Python/Java Script/React	<b>Mobile Networks</b>	2 students, 4-6 hrs per day, July - Sept
6	<b>Frequency planner</b>	Frequency planning algorithm, cost optimization algorithm used in the telecom space to provide an optimum radio frequency plan allocation	Java, Spring, Algorithmics, Object Oriented Design, Self Learner. Will need to use and learn: Apache OptaPlanner	<b>Mobile Networks</b>	4-6 students, 4-6h/day, no constraints on period as of now
7	<b>SW Intergration and Verification in Automated Environment 2G</b>	Create automated test cases based on test descriptions, finalizing by adding them into weekly automated testing that is performed in Product continuous integration for 2G	Basic knowledge of programming language (C, Python or Java)	<b>Mobile Networks</b>	3 students, 4-8 hours/day, July-September
8	<b>SyslogParser - generating InfoModel based SequenceDiagrams</b>	Extract various statistics from SYSLOG	C++ (regular expressions, google test, google mock)	<b>Mobile Networks</b>	2 students/minimum 1 month each (4h/day)
9	<b>Nokia AirFrame Cloud Infrastructure Solutions - First Steps</b>	The student will be briefed about the Nokia TelcoCloud infrastructure solution then will be a hands-on activity on deploying and scaling the NCIR Nokia AirFrame Cloud Infrastructure for Real-time applications with practical focus on Cloud Infrastructure products, as AiC 5G	Generic telecom knowledge, Networking, Linux	<b>Mobile Networks</b>	2 students, for the same period, 6h/day, all hours required by the university (minimum 90 but can be more)
10	<b>Openstack Cloud deployment</b>	Openstack installation over HP server	Basic Linux and cloud competency	<b>Cloud and Network Services</b>	1 student, 4 hours/day, 6 weeks in July/August
11	<b>Docker/Kubernetes CNF setting</b>	Docker environment installation into Linux environment for hosting Nokia containerized apps	Basic Linux/scripting competency	<b>Cloud and Network Services</b>	1 student, 4 hours/day, 6 weeks in July/August
12	<b>Learning Basic Authentication, Authorisation and Accounting (AAA) in modern Core networks</b>	This activity will train students in installing and configuring AAA on a local machine or virtual lab. This activity will cover the following activities: installing AAA and SMT, configure AAA access, basic user authentication with RTT, monitoring using SMT, AAA file structure, AAA services, AAA CLI commands ( this activity will also cover the introduction to RADIUS protocol).	IP basic knowledge Linux basic knowledge	<b>Cloud and Network Services</b>	1 student 4-6h/ day July-August

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Choose top two project preferences and send your CV at [recrutare@nokia.com](mailto:recrutare@nokia.com) by April 30<sup>th</sup>

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13	<b>Basic Authentication, Authorisation and Accounting Troubleshooting and logging in modern Core networks</b>	This activity will cover the AAA troubleshooting and logging process. Students will learn how to troubleshoot AAA using the logging function. Students will be able to learn how incoming data is processed by the policy flow and how users are authenticated based on the PF solution. In this activity different test cases will be tested using Radius Solution and RTT.	IP basic knowledge Linux basic knowledge	<b>Cloud and Network Services</b>	1 student 4-6h/ day July-August
14	<b>Basic deployment in a Cloud environment of 5G Shared data Layer (SDL)</b>	Deployment of 3 different VNFs (SDL, PGW and SDLA) in a Cloud environment; the proposed VNF have the role of Subscriber Data Base and Subscribers Provisioning	IP basic knowledge Linux basic knowledge	<b>Cloud and Network Services</b>	1-2 students 4-6h/ day July-August
15	<b>Basic integration and call flows checks between AAA and Subscriber Data Management product (HSS)</b>	This activity will cover SDM integration with other VNF's and basic call flows between them. Students will learn the different protocols and messages that are transmitted by the SDM nodes on the Mobile Core Network (3G, 4G, 5G).	IP basic knowledge Linux basic knowledge	<b>Cloud and Network Services</b>	1 student 4-6h/ day July-August
16	<b>Customer Experience - Introduction to Corporate Sales and Pre-sales. Product Solutioning and Sales Consultancy.</b>	Students will learn about: - 4G/5G Radio solutions and services - Cloud Core solutions and services - End-to-end Telco solutioning - Corporate Sales and Pre-Sales process, use-cases and cheat sheets - Soft skills, by crash courses and workshops	Wireless Telecommunications Infrastructure - Overview	<b>Customer Experience</b>	- 6h/day - July/August timeframe - target no. of students 10, but can be conditionally increased
17	<b>[WEB DEVELOPMENT] Refactoring existing applications to TypeScript</b>	Existing apps developed in Django / Node.JS / React.JS to be refactored to TypeScript (backend: node, frontend: react).	Java Script knowledge, web development basic skills. React prior experience would be useful. Willingness to learn => project will include a preparation period (Linkedin courses plus other interesting useful material) prior to commencing actual work.	<b>Network Infrastructure</b>	2-3 students, flexible period / hours/day.
18	<b>[WEB DEVELOPMENT / DevOps] Testing Web Applications</b>	Testing containerized web applications (node, react): 1) Functionality Testing 2) Usability testing 3) Interface testing 4) Compatibility testing 5) Performance testing 6) Security testing	Web development basic skills, Java Script knowledge. Willingness to learn => project will include a preparation period (linkedin courses plus other interesting useful material) prior to commencing actual work.	<b>Network Infrastructure</b>	2 students, flexible period / hours/day.
19	<b>IPO - Tools and processes automatization and Sharepoint set-up</b>	In IPO PMO organisation we see the need to do certain automatization as we are using several tools, not fully interconnected. It is also a need to create a Sharepoint where to share all info with PM/PMOM (useful links, latest templates, etc)	Advanced Power BI knowledge Advanced excel/ database knowledge Basic knowledge about Sharepoint administration	<b>Network Infrastructure</b>	1 student / 4 hours/day, 2 -3 month
20	<b>Intelligent Transport System</b>	Using GPS modules to track public transportation in Timisoara and show estimated time of arrival on a mobile app.	Mobile Apps development (Android/iOS) / Microcontrollers(optionally)	<b>Nokia Garage</b>	3 students, 6h/day;
21	<b>City Dangers Alert</b>	Create a mobile app where the user can report if it exists a problem (ex. Pothole, broken tree, broken, car on a bicycle lane etc.). Other users can see the problem, and the Admin (local authorities) can marked the problem as solved or delete it.	Mobile Apps development (Android/iOS)	<b>Nokia Garage</b>	3 students, 6h/day;
22	<b>Smart Parking System</b>	Integrate all parts of mobile app and a dashboard for users to access on site smart parking system. Deploy in real environment all components from SW to HW using the existing framework working in proof of concept mode. Work on plate recognition algorithm, payment and more access functionalities.	Mobile Apps, web development, OpenCV, C++, scripting	<b>Nokia Garage</b>	3 students, 4-6h/day, period to be defined together after selection

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