

"YOUR CHALLENGE, OUR PASSION..."







France, Germany, Russia, USA, KSA, Tunisia

www.groupe-telnet.com



ABOUT US

We are a Multinational group founded in 1994, specializing in Software & Hardware Engineering, Network Integration & Telecom, and Mechanical Studies.

With almost **30 years** and more than **600 talents**, we were able to master many fields; namely Embedded Software, Internet Of Things, Artificial Intelligence, Enterprise Applications, Cloud Computing and Electronics & Mechanical Design. We operate in various business sectors such as: Telecom & Media, E-payment, Industry, Network Operators & Enterprises and Aerospace.

Thanks to the success of the ChallengeOne satellite mission, we took the first step towards the world of Aerospace and we plan to add other innovative projects to the challenge.



Genius of Technology



TOPICS' THEMATICS

	Space	Quality Assurance
	Electronics	Information Systems
	Mechanics	Network Deployment
e	Media & Energy	E-Payment Systems
	Telecom	Human Resources

TOPICS' LIST

SPACE

SPACE-01. ChallengeONE Based Health Monitoring System	7
SPACE-02. ChallengeONE Satellite Communication Messaging Device	8
SPACE-03. Satellite Based Connected Cars Remote Diagnostic	9
SPACE-04. ChallengeONE Based Water Pipe Leak Detection Solution	10
SPACE-05. Human Abnormal Behaviors Detection Applied On An Embedded System	11
SPACE-06. ChallenegONE Based Health Monitoring Platform	12
SPACE-07. Satellite Based Connected Cars Remote Diagnostic Platform	13
SPACE-08. Artificial Intelligent Based Earth Observation	14
SPACE-09. Space IoT-based Water Quality Surveillance System	15
SPACE-10. Space IoT-based Wild Fire Notification System	16
SPACE-11. TCP/IP to BT/USB Gateway for TELNET Sat-Tracker Rotator	17

ELECTRONICS

ELECTRONICS-01. Development of an anti-collision system	19
ELECTRONICS-02. Design of a tracking module	20
ELECTRONICS-03. Flight Control Computer (FCC) module design for fixed-wing drone	21
ELECTRONICS-04. Development of a scale model for drone	22

MECHANICS

MEDIA & ENERGY

MULTIMEDIA-01. VR-Training: the exploitation of augmented reality in learning	26
MULTIMEDIA-02. The smart building, Comfort, and innovative services	27
MULTIMEDIA-03. Prototyping and implementation of a monitoring solution	28
MULTIMEDIA-04. Development of a Cyber Security System for Fraud Detection	29

TELECOM

TELECOM-01. Q	S Tool			31
---------------	--------	--	--	----

QUALITY ASSURANCE

QA-01. Dashboard reporting of integrated management system	33
OA-02. Development of a WEB application for risk management	34
OA-03 Management of internal audits and improvement actions	35

INFORMATION SYSTEMS

INFOSYSTEMS-01. Management of Leaves & Absences	37
INFOSYSTEMS-02. News and Event Management	38
INFOSYSTEMS-03. Purchase Management	39
INFOSYSTEMS-04. Help Desk: Ticket Management	40

NETWORK DEPLOYMENT

NETDEPLOY-01. Automation of 5G Service Based Architecture implementation in Native Cloud......**42 NETDEPLOY-02.** Automation of the implementation of a 5G Service Communication Proxy solution in Native Cloud.....**43**

E-PAYMENT SYSTEMS

HUMAN RESOURCES

HR-01. Development of Web and Mobile Applications to classify scanned documents	55
HR-02. Administrative Requests Ticketing System	56
HR-03. Integrated recruitment process management system	57
HR-04. Performance Management System Set up	58



SPACE-01. ChallengeONE-Based Health Monitoring System

FIELD:

Aerospace, Embedded IoT

DESCRIPTION:

Remote monitoring of an object's health condition, position/trajectory, or activities has become one of the essential purposes for modern IoT applications such as telemedicine, food tracking, and animal or elderly health care and daily life activity monitoring. Internet of Things (IoT) and artificial intelligence (AI) techniques, including machine and deep learning models, have been recently applied in the medical field to automate data collection and analysis procedures.

In this context, the TELNET Group Space Activity Departement proposes a Body Area Network (BAN) monitoring and tracking devices capable of collecting data from body sensors, data analysis and anomaly detections and data transmission to the satellite via the LoRaNET protocol to the ChallengeONE satellite at the moment of its passage.

REQUIRED THEORETICAL KNOWLEDGE:

- Embedded system design
- Radio frequency communication
- FSK, LoRa Modulations
- Analytical skills

LOCATION

Tunis



REQUIRED PRACTICAL SKILLS:

- C/C++
- RF
- STM32, FreeRTOS
- Communication protocols I²C, SPI, UART

OF INTERNS

EXPECTED DIPLOMA

SPACE-02. ChallengeONE Satellite Communication Messaging Device

FIELD:

Aerospace, Embedded IoT

DESCRIPTION:

For users in sparsely inhabited locations, in crisis situations, aboard trains, planes, and ships, satellite systems offer an important means of geolocalization and communication solutions. In each of these scenarios, satellite systems' exceptional robustness, extensive coverage, and broadcast/multicast capabilities make a variety of operations that are ordinarily dangerous much safer by providing a reliable means of emergency communication.

Using TELNET's ChallengeONE Satellite as its primary satellite communication medium, the TELNET Group Space Activity Department suggests a satellite communication messaging device capable of sending text messages, distress calls, as well as the user's geolocation information in off-limits areas.

REQUIRED THEORETICAL KNOWLEDGE:

- Embedded system design
- Radio frequency communication
- FSK, LoRa Modulations
- Analytical skills

REQUIRED PRACTICAL SKILLS:

- C/C++
- RF
- STM32, FreeRTOS
- Communication protocols I²C, SPI, UART







EXPECTED DIPLOMA





FIELD:

Aerospace, Embedded IoT

DESCRIPTION:

One of the most notable extensions in next-generation vehicles is related to the connectivity mechanism. Remote access to the car allows users, manufacturers, and service personnel to track, maintain and improve vehicles in the abundance of use cases. By adopting the Internet of Things (IoT), vehicles can be turned into a Smart Vehicle Monitoring System (SVMS) to monitor cars' health condition and prevent accidents due to emergencies and cars subsystems failures using data collected from the car's internal communication CAN Bus.

In this context the TELNET Group Space Activity Departement proposes a Car Health Monitoring device capable of collecting data exchanged on the CAN bus by sensors and controllers and data transmission to the satellite via the LoRaNET protocol to the ChallengeONE satellite at the moment of it passage for anomaly detections.

REQUIRED THEORETICAL KNOWLEDGE:

- Embedded system design
- Radio frequency communication
- FSK, LoRa Modulations
- Analytical skills

REQUIRED PRACTICAL SKILLS:

- C/C++
- RF
- STM32, FreeRTOS
- Communication protocols I²C, SPI, UART, CAN







EXPECTED DIPLOMA

SPACE-04. ChallengeONE Based Water Pipe Leak Detection Solution

FIELD:

Aerospace, Embedded IoT

DESCRIPTION:

In recent years, Pipeline failures in water distribution networks have led to the loss of a considerable amount of high-quality water. Different monitoring methods are often used to identify the failing infrastructure, which is subsequently maintained, however, the increased pressures on a fast-expanding water supply network need the development of better leak detection technologies, particularly for intercities networks and extreme length pipes where current leak localization procedures are mostly ineffective.

In this context, TELNET Group Space Activity Department proposes a Water Pipe Leaks Detection Solution based on earth-deployed nodes capable of leak sources identification and localization, then, data transmission to the satellite via the LoRaNET protocol to the ChallengeONE satellite at the moment of it passage.

REQUIRED THEORETICAL KNOWLEDGE:

- Embedded system design
- Radio frequency communication
- FSK, LoRa Modulations
- Analytical skills
- Signal Processing

REQUIRED PRACTICAL SKILLS:

- C/C++
- RF
- STM32, FreeRTOS
- Communication protocols I²C, SPI, UART

LOCATION



4 months



EXPECTED DIPLOMA



SPACE-05. Human Abnormal Behaviors Detection Applied On An Embedded System

FIELD:

Aerospace, Embedded IoT

DESCRIPTION:

In a camera surveillance network placed around a facility perimeter, current humanbased security breaches detection methods are not effective to ensure full-time security A perimeter intrusion detection system (PIDS) aims to detect the presence of an unauthorized object in a protected outdoor site during a certain time with no human intervention.

In this context, TELNET Group Space Activity Department proposes the implementation of an Al-based surveillance system running algorithms capable of object type, actions, and trajectory recognition, as well as user notification via the ChallengeONE Satellite communication System The Algorithm, should be precise and near real-time and to be used on an embedded system.

MISSION:

- Collect Data and Apply necessary pre-processing
- Design the adequate AI Algorithm architecture
- Develop the AI algorithm
- Apply a performance survey
- Embed the model on an Embedded System

REQUIRED THEORETICAL KNOWLEDGE:

• Embedded system design

- Radio frequency communication
- FSK, LoRa Modulations
- Analytical skills

REQUIRED PRACTICAL SKILLS:

- C/C++
- RF
- STM32, FreeRTOS
- Communication protocols I²C, SPI, UART







EXPECTED DIPLOMA

SPACE-06. ChallengeONE Based Health Monitoring Platform

FIELD:

Aerospace, AI, Frontend Development

DESCRIPTION:

Remote monitoring of an object's health condition, position/trajectory, or activities has become one of the essential purposes for modern IoT applications such as telemedicine, food tracking, animal or elderly health care, and daily life activity monitoring.

In Relation to the ChallengeONE Based Health Monitoring System Project (SPACE-01), TELNET Space Department proposes a Body health monitoring Web platform used to monitor the biometric data collected by the ChallengeONE satellite.

The platform will be capable of data analysis, anomaly detection, and health insight for multiple users through an Interactive Real-time dashboard.

MISSION:

- Develop a Web platform for body health monitoring
- Apply necessary pre-processing on satellite-received data
- · Maintain the availability and security of the data
- Develop necessary AI/ML algorithms

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

- Fullstack Web Development
- Data Engineering

- React/Angular
- Python
- Tensorflow/Keras
- Django/SpringBoot
- Databases
- Git





4 months



EXPECTED DIPLOMA

IT engineer Software engineer

SPACE-07. Satellite Based Connected Cars Remote Diagnostic Platform

FIELD:

Aerospace, AI, Frontend Development

DESCRIPTION:

One of the most notable extensions in next-generation vehicles is related to the connectivity mechanism. Remote access to the car allows users, manufacturers, and service personnel to track, maintain and improve vehicles in the abundance of use cases. In Relation to the Satellite-Based Connected Cars Remote Diagnostic Project (SPACE-03), TELNET Space Department proposes an android application development, this application works in two modes: * **Network Covered Area:** the application connects to the car diagnostic system using BT collects necessary data, thus offering the user the capability of consulting the car's health and as well as sending data to remote servers using the internet. ** **Non-Covered Area:** the application stores data internally and performs the necessary updates to the server whenever it is possible Also we propose a Car Remote Diagnostic Web Application capable of processing and displaying data from the satellite in interactive dashboards. The web application will be used to allow users to monitor cars containing SPACE-03 as well as send alerts to the authorities in case of an incident in one of the cars.

- · Collect Data and Apply necessary pre-processing
- Develop a Web Application for monitoring and management of the cars
- · Maintain high availability and high security of the data
- · Create an alert system to notify the authorities

MISSION:

- Develop an Android Application and a Web Application for monitoring and management of the cars
- Collect and store data
- Apply necessary pre-processing on received data
- Maintain the availability and security of the data
- · Maintain a BLE connectivity with the car
- Create an alert system to notify the authorities

REQUIRED PRACTICAL SKILLS:

- Flutter/Ionic/Android
- Java/Kotlin
- Database NoSQL/SQL
- Bluetooth/BLE
- React/Angular
- Python
- Django/SpringBoot

Tunis

🙎 LOCATION

DURATION 4 months



REQUIRED THEORETICAL KNOWLEDGE:

- FullStack Web
- Android
- Data Engineering

EXPECTED DIPLOMA

IT engineer Software engineer

SPACE-08. Artificial Intelligent Based Earth Observation

FIELD:

Aerospace, Al, Frontend Development

DESCRIPTION:

Artificial intelligence and machine learning are ubiquitous in the domain of Earth Observation (EO) and Remote Sensing. Congruent to their success in the domain of computer vision, they have proven to obtain high accuracies for EO applications.

TELNET Space Department proposes an AI algorithm to process satellite images in order to observe the earth.

MISSION:

- Collect datasets
- Develop an AI algorithm for earth satellite image processing
- Apply necessary pre-processing
- Maintain the availability and security of the data

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

- Python
- Tensorflow/Keras
- openCV
- Databases
- Numpy

- Flutter/Ionic/Android
- Java/Kotlin
- Database NoSQL/SQL
- Bluetooth/BLE
- React/Angular
- Python
- Django/SpringBoot







4 months



EXPECTED DIPLOMA

IT engineer Software engineer



SPACE-09. Space IoT-based Water Quality Surveillance System

FIELD:

Aerospace, Embedded IoT

DESCRIPTION:

Due to the vast increase in global industrial output, rural-to-urban drift and the overutilization of land and sea resources, the quality of water available to people has deteriorated greatly. Environmental water quality monitoring aims to provide the data required for safeguarding the environment against adverse biological effects from multiple chemicals as water quality is one of the main factors to control health and the state of diseases in people, aquatic animals, and many agricultural lands.

In this context, TELNET Group Space Activity Department proposes a Monitoring System capable of collecting data relative to the water's composition and Quality in natural reserves as well as transmitting the collected data to the ChallengeONE Satellite at the moment of its pass.

REQUIRED THEORETICAL KNOWLEDGE:

- Embedded system design
- Radio-frequency communication
- FSK, LoRa Modulations
- Analytical skills

REQUIRED PRACTICAL SKILLS:

- C/C++
- RF
- STM32, FreeRTOS
- Communication protocols I²C, SPI, UART

LOCATION Tunis

4 months

OF INTERNS

EXPECTED DIPLOMA

SPACE-10. Space IoT based Wild Fire Notification System

FIELD:

Aerospace, Embedded IoT

DESCRIPTION:

The occurrence of forest fires causes serious damage to ecological diversity and the safety of people's property and life. However, due to the complex forest environment, the changeable shape of forest fires, and the uncertainty of flame color and texture, traditional forest fire detection methods are sometimes ineffective.

In this context, TELNET Group Space Activity Department proposes a Wild Fire Notification System based on a network of data collection nodes capable of detecting fire sources and authorities notifications using the ChallenegONE Satellite communication system.

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

- Embedded system design
- Radio frequency communication
- FSK, LoRa Modulations
- Analytical skills

- C/C++
- RF
- STM32, FreeRTOS
- Communication protocols I²C, SPI, UART

LOCATION Tunis



OF INTERNS

EXPECTED DIPLOMA



SPACE-11. TCP/IP to BT/USB Gateway for TELNET Sat-Tracker Rotator

FIELD:

Aerospace, Embedded IoT

DESCRIPTION:

Telnet SatTrack is a rotator proposed by TELNET to point a group of directional antennas toward a moving satellite in low earth orbit.

The system was designed primarily for the ChallengeONE project and is capable of pointing 10Kg antennas in all directions necessary to track a satellite in low earth orbit during its pass. To equip Sat Tracker with more connectivity, TELNET Group Space Activity Department proposes a TCP/IP to BT/USB Gateway capable of receiving frames from users connected to the network and retransmitting the information to the Sat Tracker.

REQUIRED THEORETICAL KNOWLEDGE:

- Embedded system design
- Radio frequency communication, Bluetooth
- Analytical skills

REQUIRED PRACTICAL SKILLS:

- C/C++
- Multithreading
- Raspberry pi, Linux
- Communication protocols I²C, SPI, UART, USB, TCP/IP

LOCATION



OF INTERNS

EXPECTED DIPLOMA



ELECTRONICS-01. Development of an anti-collision system

FIELD:

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Drones / Robotics / Embedded Systems

DESCRIPTION:

The objective is to study the existing anti-collision systems for drones in order to propose the optimal solution that will be implemented in the Phoenix drone. The system must make it possible to identify and report the objects detected within a well-defined perimeter and to carry out the necessary maneuvers to avoid collisions.

REQUIRED THEORETICAL KNOWLEDGE:

- Oriented Object Programming
- Radio Frequencies

REQUIRED PRACTICAL SKILLS:

- C++
- Mavlink
- JSON
- Raspberry Pl
- RF
- ADS-B...







EXPECTED DIPLOMA

Embedded Systems Engineer IT Engineer

ELECTRONICS-02. Design of a tracking module

FIELD:

RF, Aerospace, Drones

DESCRIPTION:

Development of a tracking system for a ground station of a drone in order to ensure the orientation of the antennas and to maintain RF communication with the drone. A HW/MEC analysis of the system is required to identify components and modules to be integrated and tested.



Mechantronics / Electrical Engineering Diploma in Electronics



ELECTRONICS-03. Flight Control Computer (FCC) module design for fixed-wing drone

FIELD:

Drones

DESCRIPTION:

This topic consists of defining the SW/HW architecture of the FCC module by including the interfaces necessary to ensure the control, the command and the communication with the various subsystems of the drone. An electronic card is also to be developed based on the software, hardware and mechanical constraints of the Phoenix drone.

REQUIRED THEORETICAL KNOWLEDGE:

- Digital and Analog Electronics
- Embedded Systems
- Microcontroller Architecture
- EMC Analysis
- Electronic Board Design

REQUIRED PRACTICAL SKILLS:

- Electronic Board Routing
- Altium tool



DURATION 4-6 months **# OF INTERNS**

EXPECTED DIPLOMA

Electrical engineer Mechatronic Engineer Electronic engineer

ELECTRONICS-04. Development of a scale model for drone

FIELD:

Aerospace, Drones

DESCRIPTION:

This topics is about the study, design and manufacture of an electric scale model (pusher) for a fixed-wing drone which will allow the various functionalities of the Flight Control Computer FCC module to be validated. A SW/HW/MEC study is necessary to properly propose the architecture to be implemented for this pusher model.

REQUIRED THEORETICAL KNOWLEDGE:

- Mechatronics
- Embedded systems
- Model aircraft...

REQUIRED PRACTICAL SKILLS:

- CAD 2D, 3D
- Electrical Wiring







EXPECTED DIPLOMA

Mechantronics / Electrical Engineering Diploma in Electronics





MECHANICS-01. Definition of a UAV Assembly Methodology: Process Definition and Tooling Design

FIELD:

Mechanical manufacturing process

DESCRIPTION:

A drone prototype has been designed and manufactured by Telnet in a unitary way, we seek to define a mass production process to reach a given annual production volume.

For this purpose, you will have to:

- Learn about the various mechanical, electrical and electronic systems and components of the drone,

- Define a manufacturing process for each structural element and each component, including the definition of assembly and control tools,

- Define the procedure for assembly and integration of the assemblage, including the design of the necessary assembly tools.

REQUIRED THEORETICAL KNOWLEDGE:

- Manufacturing
- Metallic and non-metallic material
- Assembly technique

REQUIRED PRACTICAL SKILLS:

- CATIA Software
- Composite materials
 processing







EXPECTED DIPLOMA

Mechanical Engineer





MULTIMEDIA-01. VR-Training: the exploitation of augmented reality in learning

FIELD:

Digital solutions

DESCRIPTION:

The various possibilities offered by augmented reality have made it possible to explore different uses in several scientific fields. In the area of apprenticeships, studies show that this technology has a positive impact on education. It offers powerful flexibility in the possibilities of presenting information to the learner and introducing sensorimotor (bodily) and cognitive activities into the learning processes.

Training in augmented reality environments has many advantages over training in realworld environments. In addition, several research studies have shown that this technology has a positive influence on learners' user experience.

The purpose of the internship would be to develop an AR learning experience when acquiring a new device. This experiment would make it possible to replace the traditional "user manuals" and simplify the steps: installation, start-up, configuration, and even removal (after-sales service). From a software perspective, students will:

- Conduct needs assessment.
- Design the solution according to these needs.
- Establish the working environment.
- Develop Mobile (Android) software.
- Prepare and execute the functional validation strategy.
- Perform solution unfoldment.

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

Web and Mobile software design

Android, Kotlin, JS, database, ARCore

- Excellent oral and written communication in French.
- Web Development, Mobile Development, Augmented Reality.
- Spirit of synthesis.
- Analytical mind.





4 - 6 months

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EXPECTED DIPLOMA



MULTIMEDIA-02. The smart building, Comfort, and innovative services

FIELD:

Smart Building

DESCRIPTION:

The smart building is based on the integrated control of all the electrical functions of the home, from heating to lighting, as well as household appliances and monitoring systems.

Programming, communication, and integration are the keywords of this intelligent management, which aims to provide optimal comfort and management solutions.

The purpose of the course would be to make communicating a device initially not connected so prototyper and develop an optimized management solution.

From a software perspective, the student will:

- Write a technical specification.
- Establish the working environment.
- Develop the embedded software based on the Development Kit.
- Develop the application to exploit the solution.

REQUIRED THEORETICAL KNOWLEDGE:

- Excellent oral and written communication in French.
- C/C++/Web/Mobile development.
- Spirit of synthesis.
- Analytical mind.

REQUIRED PRACTICAL SKILLS:

 Design solutions in a mixed environment (Embedded, Web & Mobile)







EXPECTED DIPLOMA

MULTIMEDIA-03. Prototyping and implementation of a monitoring solution

FIELD:

Supervision

DESCRIPTION:

The aim of this course would be to study and prototype a software diagnostic solution to monitor the activity of a device in real-time and have indicators on the general state of health (system metrics, OS and business).

You will be in charge of the following activities:

- Make a description of the operation
- State of the art of existing implementations
- · Prototyping a solution based on the technological choices made by TELNET
- Implement this solution on a target to be provided by TELNET

REQUIRED THEORETICAL KNOWLEDGE:

- Excellent oral and written communication in French.
- C/C++/Rust/Development under a Linux environment,
- eBPF.
- Spirit of synthesis.
- Analytical mind.

SKILLS:

Embedded software design

REQUIRED PRACTICAL

Networking knowledge is a plus



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EXPECTED DIPLOMA



MULTIMEDIA-04. Development of a Cyber Security System for Fraud Detection

FIELD:

Cybersecurity

DESCRIPTION:

Various systems, software, and methods such as phishing, ransomware, and spoofing are used to spy on or hijack confidential or personal data.

These malware programs are now so sophisticated and highly developed that conventional defense and traceability options are often limited.

In this context, we propose to develop a cybersecurity system for fraud detection, offering intelligent intelligence services, and allowing the discovery and early prevention of information leaks.

REQUIRED THEORETICAL KNOWLEDGE:

- Excellent oral and written communication in French.
- Amazon AWS, NodeJs, ReactJs, GraphQl, MongoDB,
- SQL, Restful, CSS, Cloud, PhantomJs
- Spirit of synthesis.
- Analytical mind.

LOCATION



REQUIRED PRACTICAL SKILLS:

- Cloud
- Networking



EXPECTED DIPLOMA





TELECOM-01. QoS Tool

FIELD:

IT Networking, QoS, Development

DESCRIPTION:

Develop a tool that will be used for testing the QoS implementation in Home Gateway devices. The tool will need to check :

- The verification of correct QoS DSCP field marking (L2/L3)
- Queuing/Scheduling of different traffics (VO,VI, BK,BE)
- WLAN WMM tests.
- Prioritization of different Control packets

The tool will be developed in python using the Django framework as a web application. And need to be customizable to an extent that will cover multiple scenarios and QoS specifications.

REQUIRED PRACTICAL SKILLS:

- Networking
- Python/Django
- Shell, Linux/Debian
- HTML5, CCS3, javascript, bootstrap4, jsquery





OF INTERNS

EXPECTED DIPLOMA



QA-01. Dashboard reporting of integrated management system

FIELD:

Web development / management system / Agile / KPI/ visual management

DESCRIPTION:

In the continuity of the digitalization of the management system, Telnet proposes to enrich its platform with a Web application for the visual management of the system performance. The application must allow to:

- Define all Key Performance Indicators (quality, Information security, Corporate social)
 + corresponding targets
- Allow to customize other KPIs
- Notify concerned persons by email
- import required data from several sources (file, other application...)
- communicate with other applications through web service (internal audits, actions....)
- Allow to analyze the causes of KPI deviation and plan actions.
- Provide a visual overview of system management performance for management review to make decisions

The solution must be secure from design to testing and meet secure code standards (OWASP, etc.)

REQUIRED THEORETICAL KNOWLEDGE:

- Web Development
- AGILE
- Artificial intelligence

REQUIRED PRACTICAL SKILLS:

- Web Development
- Web services
- DataBase
- Git







EXPECTED DIPLOMA

QA-02. Development of a WEB application for risk management

FIELD:

Web development / Project management / Agile / Risk management

DESCRIPTION:

Risk is inherent in all aspects of a TELNET's Integrated Management systems. The purpose of this project is to develop a web application for handling strategic, process and project Risks management of TELNET Activities.

This application brings key features to help TELNET's manager conduct their risk assessments in a smart and digitalized way, save valuable time throughout the process and ensure activity continuity.

- Risk identification
- Risk analysis
- Risk assessment
- Risk treatment
- Risk mapping
- Risk Dashboard interfaces

REQUIRED THEORETICAL KNOWLEDGE:

- Web Development
- AGILE
- Artificial intelligence

REQUIRED PRACTICAL SKILLS:

- Web Development
- Web services
- DataBase
- Git







EXPECTED DIPLOMA



QA-03. Management of internal audits and improvement actions

FIELD:

Web development / Project management / Agile / Quality Auditing

DESCRIPTION:

As part of the digitalization of the integrated management system, Telnet proposes to enrich its platform with a Web application for the management of internal audits and the management of Quality actions. The application must allow to:

- Plan audits
- Track the status of audits from inception to closure.
- Assist the auditors in the conduct of the audit in the drafting of audit reports.
- Allow to analyze the causes of discrepancies by means of several causal analysis methods.
- Import and export audit reports taking into account the various Telnet Templates.
- Notify the persons concerned by the audit by email.
- · Manage Quality actions (Corrective, preventive and Improvement).
- Provide a dashboard for planning and monitoring the resulting action audits.
- Develop customized reports on internal audits and actions.

The solution must be secure from design to testing and meet secure code standards

REQUIRED THEORETICAL KNOWLEDGE:

- Web Development
- AGILE

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REQUIRED PRACTICAL SKILLS:

- Web Development
- Web services
- DataBase
- Git







EXPECTED DIPLOMA





INFOSYSTEMS-01. Management of Leaves & Absences

FIELD:

Design and development of a mobile application for managing leaves and absences.

DESCRIPTION:

- Requirements analysis
- · Management of leave requests and exit authorizations
- Request workflow management
- Management of notifications related to requests
- Ensure communication between the two services

REQUIRED PRACTICAL SKILLS:

- Android / Kotlin
- Spring
- PL/SQL
- Architecture microservices
- Git
- Scrum







EXPECTED DIPLOMA

INFOSYSTEMS-02. News and Event Management

FIELD:

Design and development of a web application for the management of news and events of the company.

DESCRIPTION:

- Requirements analysis
- Rich graphic design and development for the management of the company's / employees' news
- News management:
 - + Events
 - + Employee events
 - + News
- Management of useful company data:
 - + Agenda
 - + Conventions and Procedures
- Notification management

REQUIRED PRACTICAL SKILLS:

- .Net Core / C#
- Angular / Typescript
- PL/SQL
- Base des données Oracle
- Git
- SCRUM



Tunis

4 - 5 months



EXPECTED DIPLOMA





INFOSYSTEMS-03. Purchases Management

FIELD:

Design and development of a web application for procurement management

DESCRIPTION:

- Requirements analysis
- Management of procurementrequests
- Managing the workflow of a purchase request
- Notification management

REQUIRED PRACTICAL SKILLS:

- .Net Core / C#
- Angular / Typescript
- PL/SQL
- Base des données Oracle
- Git
- SCRUM







EXPECTED DIPLOMA

INFOSYSTEMS-04. Help Desk: Ticket Management

FIELD:

Design and development of a Web application for the management of IT support tickets.

DESCRIPTION:

- Requirements analysis
- Ticket Management
- Ticket workflow management
- Notification management

REQUIRED PRACTICAL SKILLS:

- .Net Core / C#
- Angular / Typescript
- PL/SQL
- Base des données Oracle
- Git
- SCRUM



DURATION 4-5 months



EXPECTED DIPLOMA





NETDEPLOY-01. Automation of 5G Service Based Architecture implementation in Native Cloud

DESCRIPTION:

Design and implementation of a native cloud environment based on VMware vSphere. The native cloud environment must host micro-delivered NFs (Network Functions)/Telecom and 5G applications services and manage by agile DevOps processes and workflows with the implementation of a continuous CI/CD delivery strategy for the deployment of 5G functions.

REQUIRED PRACTICAL SKILLS:

- Virtualization
- VMware vSphere
- Conteneurisation
- Docker
- Orchestration
- Kubernetes
- Automatization
- Terraform, Ansible, Scripting BASH/Shell
- Télécommunications (4G/5G)
- Distribution Unix (de préférence des dérivés de RHEL/CentOS)
- Communication fluide en Français
- Prometheus, ELK, Jaeger





4 - 5 months



EXPECTED DIPLOMA

ICT Engineer Telecom Engineer



NETDEPLOY-02. Automation of the implementation of a 5G Service Communication Proxy solution in Native Cloud

DESCRIPTION:

Design and implementation of a native cloud environment based on VMware vSphere. Native cloud environment must host NFs (Network Functions)Telecom and 5G applications delivered as microservices and manage through agile DevOps processes and workflows with the implementation of a continuous CI/CD delivery strategy for 5G deployment.

REQUIRED PRACTICAL SKILLS:

- Virtualization
- VMware vSphere
- Conteneurisation
- Docker
- Orchestration
- Kubernetes
- Automatization
- Terraform, Ansible, Scripting BASH/Shell
- Télécommunications (4G/5G)
- Distribution Unix (de préférence des dérivés de RHEL/ CentOS)
- Communication fluide en Français
- Prometheus, ELK, Jaeger







Tunis

EXPECTED DIPLOMA

ICT Engineer Telecom Engineer



E-PAYSYS-01. Development and deployment of a Web application for ISMS management

FIELD:

Web Development / Information Security

DESCRIPTION:

The candidate has to maintain, develop new features and deploy a web-based Information Security Management System (ISMS).

This application must provide a dashboard for monitoring the performance of the ISMS via KPIs, a workflow of interactions between incidents, risks, changes, and business continuity.

Technically, the solution has a Frontend part developed with Angular and CSS3 and a Backend part based on Spring Boot.

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

- Web Development
- Java / JavaEE

• Web 2.0

- TypeScript / Angular
- MongoDB
- Git
- Rest API



DURATION 4-5 months



EXPECTED DIPLOMA

E-PAYSYS-02. Development of a web application for poker planning / Retrospective

FIELD:

Web development / Project management / Agile / Planning / Retrospective

DESCRIPTION:

The candidate has to maintain and develop a web application for poker planning and retrospective which will be used in the SCRUM/Agile planning ceremonies as well as the points/actions brought up during the retrospective meetings.

This application will be composed of two parts: a Frontend part based on Angular and CSS3 and a Backend part based on Node. The communication between the different parts is done via Web sockets.

REQUIRED THEORETICAL KNOWLEDGE:

- Web Development
- Node
- AGILE

REQUIRED PRACTICAL SKILLS:

- Web 2.0
- TypeScript / Angular
- PostgreSQL
- Git



4-5 months



EXPECTED DIPLOMA



E-PAYSYS-03. Implementation / Improvement of test automation Framework for a WEB 2.0 application

FIELD:

Testing, JavaScript/TypeScript, Cucumber, Protractor, Cypress, Gitlab-Cl

DESCRIPTION:

The candidate will specify, design and develop a framework for UI (User Interfaces) automation tests for a Web application developed in Angular using new technologies such as Cypress, Cucumber...

The implementation of this Framework, will require as a first step, the migration of the existing E2E tests implemented in Protractor, followed by an improvement step for different tests while respecting several aspects:

* Tests data management, tests consistency, the clarity of generated reports indeed test execution coverage percentage...

REQUIRED THEORETICAL KNOWLEDGE:

- Testing
- Automation
- Web 2.0

REQUIRED PRACTICAL SKILLS:

- TypeScript / JavaScript
- Python
- Protractor, Cypress, Cucumber
- Gitlab-Cl

LOCATION Sfax



OF INTERNS 1

EXPECTED DIPLOMA

E-PAYSYS-04. Integrating facial recognition into an Android payment solution

FIELD:

Mobile, Android

DESCRIPTION:

The topic is to integrate facial recognition into a payment solution, in order to facilitate the user experience (merchant and customer) on an Android payment terminal.

Facial recognition must allow the merchant to authenticate in order to have access to the "ADMIN" functions of the application and must also allow the identification of the customer to process the payment without presenting a card based on a Tokenization algorithm.

Optionally, add a feature for detecting handwritten data on the terminal screen and generating orders to help the visually impaired in the use of the payment device.

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

- Mobile Development
- Kotlin / JAVA
- Artificial intelligence
 - Computer Vision







EXPECTED DIPLOMA



E-PAYSYS-05. Development of a payment terminal transaction reporting solution

FIELD:

Embedded Systems Development

DESCRIPTION:

The solution will be based on two components:

- A web-based application on the terminal to launch and retrieve transaction data.
- A web server to collect transaction data from terminals, and generate custom data and reports for merchants.

The solution should allow flexibility in search criteria selection and data export and provide a user-friendly interface for transaction tracking.

REQUIRED THEORETICAL KNOWLEDGE:

Web & Embedded Development

REQUIRED PRACTICAL SKILLS:

- Web technologies
- C/C++
- Web Socket / HTTP







EXPECTED DIPLOMA

E-PAYSYS-06. Study and development of a payment solution allowing the processing of a transaction by gift vouchers and bank cards

FIELD: Monetary, Payment

DESCRIPTION:

The current application allows the use of either a credit card or a gift certificate to make the payment of the total amount of the transaction.

The objective is to study the existing solution and develop it so that you can make the payment using both a gift voucher and a bank card, that is to say, a part of the total amount will be paid by check and the rest by the bank card.

The candidate will be required to design/develop a client/server solution:

- An embedded application (client) using an electronic payment terminal
- A desktop application (server) using application virtualization technologies

REQUIRED THEORETICAL KNOWLEDGE:

Server client architecture

Application virtualization

REQUIRED PRACTICAL SKILLS:

- C, C++
 - Postgresql
 - Docker







EXPECTED DIPLOMA



E-PAYSYS-07. Study and development of a solution for the configuration of payment applications

FIELD:

Monetary, Payment

DESCRIPTION:

The objective is to analyze the existing solution and propose configuration format(s) according to new data structuring technologies.

The candidate will design/develop a payment server configuration module using application virtualization technologies to ensure:

- Syntax analysis according to the proposed new format;
- Interaction with the database;
- Interoperability with applications using the current configuration module.

REQUIRED THEORETICAL KNOWLEDGE:

- Server client architecture
- Application virtualization

REQUIRED PRACTICAL SKILLS:

- C, C++
- Python
- Postgresql
- Docker







EXPECTED DIPLOMA

E-PAYSYS-08. Design and realization of a payment terminal management application

FIELD:

Monetary, Payment

DESCRIPTION:

The project consists of the design and development of a web application for the management of electronic payment terminals providing the following functionalities:

- · Management of payment terminals.
- · Terminal configuration settings management.
- Configuration of software updates to be deployed to terminals.
- Report generation and statistics.
- Automate data synchronization with the central server.
- Deployment of the solution

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

- Object oriented programming
- Development WEB

- Java 8+
- Spring Boot
- Angular4+
- Restful Web services
- SQL DB (Postrgres, Mysql..) / NoSQL DB (elastic search)
- Docker
- Maven
- GIT







EXPECTED DIPLOMA



E-PAYSYS-09. Development of A Mobile application To Communicate With An Electronic Payment Terminal

FIELD:

Monetary, Payment

DESCRIPTION:

The candidate is required to specify, design and develop a multi-platform Mobile application (Android and iOS).

The Mobile application will react as an ECR (Electronic Cash register) to send payment commands to an Electronic Payment Terminal. The ECR will communicate with the Electronic Payment Terminal via Bluetooth.

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

Mobile Development

• Flutter 3

• GIT...



4-5 months

OF INTERNS

EXPECTED DIPLOMA



HR-01. Development of Web and Mobile applications to classify scanned documents

FIELD:

Al, Micro-Services, Linux, Mobile, WEB

DESCRIPTION:

The candidate is required to specify, design, and develop a WEB application, and maintain an existing Mobile application and Micro-Services based on Artificial Intelligence used for the classification of scanned documents (Example: Resumes). The Mobile application is used to scan administrative documents (Resumes) and to classify them according to predefined profiles while exchanging with Micro-Services.

These Micro Services are based on Artificial Intelligence (Deep Learning, CNN, LBPH, ADL, etc.).

The WEB application will be used for administrative purposes and responsible for the configuration and monitoring of this classification solution.

REQUIRED THEORETICAL KNOWLEDGE:

- Artificial intelligence
- Mobile and WEB development
- Web Services, Web Token

REQUIRED PRACTICAL SKILLS:

- Web 2.0
- Java / Java EE
- TypeScript / Angular
- Flutter / Kotlin
- GIT ...







EXPECTED DIPLOMA

HR-02. Administrative requests ticketing system

FIELD:

Administration / Human Resources

DESCRIPTION:

A ticketing system is a management tool that processes and catalogs customer service requests. The ticketing system should be user-friendly for customer service representatives, managers, and administrators.



REQUIRED PRACTICAL SKILLS:

- Understanding of the different administrative requests, administrative processes and workflows
- .NET Core
- Angular



DURATION 4 months



EXPECTED DIPLOMA

Software Engineer

HR-03. Integrated recruitment process management system

FIELD:

Full-stack Web Development, HR, Al...

DESCRIPTION:

Recruitment is a strategic issue for any company, it is considered a key factor for its efficiency and development. It aims to seek, renew or consolidate the skills of the company which are the basis of its development.

The HR department is always faced with several problems:

- <u>Lack of information</u>: The company wishes to have more and more information about the candidate. the paper CV is often seen as simplistic and does not really reflect the application.
- <u>Selection</u>: It is always difficult to quickly select the right profile to consider taking a new position. You have to constantly classify the CVs (sometimes by the hundreds) and search in the old database to see if the profiles match the position.

The objectives would be:

- Offer a centralized platform that encompasses the recruitment process and automates certain stages of this process.
- Reduce application processing time.
- Form a database of candidates.
- Reduce the amount of paper used unnecessarily.
- Facilitate decision-making.

From the software point of view, the trainee will have to:

- Study the needs.
- Design the solution according to these needs.
- Setting up the work environment.
- Develop the software based on the work already in place.
- Prepare and execute the functional validation strategy.
- Prepare and execute security tests.
- Carry out the deployment of the solution.

REQUIRED THEORETICAL KNOWLEDGE:

- Excellent oral and written communication in French
- Web development
- Analytical mind

REQUIRED PRACTICAL SKILLS:

- Web software design
- Full-stack web development





1

OF INTERNS

EXPECTED DIPLOMA

HR-04. Performance management system set up

FIELD:

Talent Management / Human Ressources

DESCRIPTION:

The performance management cycle is a part of the performance management process or strategy, it is shorter and utilizes a continuous four-step procedure of planning, monitoring, reviewing and rewarding. This performance management cycle will be in sync with the career pathing project and will be interactive to individual contributors, their managers and HR.

REQUIRED THEORETICAL KNOWLEDGE:

REQUIRED PRACTICAL SKILLS:

- Understanding of the 4 stages performance management cycle and understanding the career pathing architecture
- Angular • .NET Core





EXPECTED DIPLOMA

Software Engineer







HOW TO APPLY





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