

## Optical and Quantum System Engineer

**Job Req ID:** 12965

**Closing Date:** 02 December 2021

**Publication:** Internal & External

**Vacancy Type:** Permanent

**Date Posted:** 05 November 2021

Vacancy in the Directorate of Telecommunications and Integrated Applications.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce & creating an inclusive working environment. We therefore welcome applications from all qualified candidates irrespective of gender, sexual orientation, ethnicity, beliefs, age, disability or other characteristics. Applications from women are encouraged.

This post is classified A2-A4 on the Coordinated Organisations' salary scale.

### Location

ESTEC, Noordwijk, Netherlands

### Description

If appointed to this post, you will report to the ScyLight Strategic Programme Line Manager and will functionally support the HydRON Implementation Manager. You will also be responsible for the system-related activities of the HydRON project, a component of ESA's ARTES Strategic Programme Line Optical Communication – ScyLight.

The HydRON project concerns the definition, design, development and in-orbit verification and validation of a Demonstration System of a high-throughput optical network in space. The HydRON Demonstration System is composed of a space segment, a ground segment, a user segment and a control centre (part of the ground segment) orchestrating all space and ground assets. The in-orbit verification of the system will demonstrate the key technologies enabling the deployment of a high-throughput optical network in space. The ultimate goal of the HydRON project is to showcase the end-to-end system functionalities and provide a minimum viable service for HydRON users.

### Duties

You will be responsible for defining all mission and system-level requirements and coordinating all system-related activities during the development, integration and testing of the space, ground and user segments of the HydRON Demonstration System.

Your main tasks and responsibilities will include:

- leading the definition of all mission and system requirements, including interface requirements, and allocating segment requirements;
- managing the definition of the use/service requirements of the minimum viable service provided by the HydRON-DS;
- monitoring the traceability of requirements from user/service, to mission, to system, to

- managing the space, ground and user segments definition, trade-offs and design in close cooperation with industry;
- monitoring the payload and ground equipment definition, trade-offs and design in close cooperation with industry;
- defining the system operational concept of the system and of the space, ground and user segments;
- managing performance models to estimate system-level performances of the system and of the space, ground and user segments;
- monitoring and maintaining the system-level and segment budgets during the Design, Development and Demonstration phases;
- supporting the implementation of the HydRON-DS Phase A/B1 study;
- supporting the coordination of workshops with HydRON users;
- coordinating the announcement of flight opportunities for space segment assets;
- managing the definition of the on-ground test plan and the in-orbit validation plan of all system-level and segment-level requirements;
- providing system-level support during the development, assembly, integration and testing of all elements of the space, ground and user segments as part of the Development phase;
- supporting the testing and verification of all requirements at end-to-end system level and space, ground- and user segment level during the Development phase;
- managing the verification and validation of all system activities (including external interfaces validation) during the Demonstration phase in cooperation with industrial partners;
- evaluating the acceptability of the industrial activities related to all system-level aspects participating in major technical reviews and preparing relevant inputs for the decision-making process;
- identifying and tracing potential risks and proposing risk mitigation measures.

### **Technical competencies**

Multi-disciplinary knowledge of area of responsibility

Proven experience in defining mission/system and user/service requirements of complex satellite systems

Proven experience in defining, designing and analysing complex system architectures for satellite communications as well as experience in defining the related operations concept

Proven experience in model based system engineering (MBSE) tools for modelling and evaluating end-to-end system performances of complex satellite systems

Knowledge of industrial costs and schedule aspects, space system development and PA standards

Complex project risk management processes

Knowledge of ESA and industrial development, verification and procurement processes

Knowledge of free space communications and terrestrial networks will be an asset

### **Behavioural competencies**

Result Orientation

Operational Efficiency

Fostering Cooperation

Relationship Management

Continuous Improvement

Forward Thinking

### **Additional requirements**

Engineering experience in complex space programmes, preferably in telecommunications, up launch and in-orbit testing is desirable.

Direct experience of working with commercial telecommunications industry and operators will be a distinct advantage.

You must be eligible to obtain security clearance from the relevant national authorities.

### **Other information**

For behavioural competencies expected from ESA staff in general, please refer to the [ESA Competency Framework](#).

The working languages of the Agency are English and French. A good knowledge of one of these is required. Knowledge of another Member State language would be an asset.

The Agency may require applicants to undergo selection tests.

At the Agency we value diversity and we welcome people with disabilities. Whenever possible we seek to accommodate individuals with disabilities by providing the necessary support at the workplace. The Human Resources Department can also provide assistance during the recruitment process. If you would like to discuss this further please contact us email [contact.human.resources@esa.int](mailto:contact.human.resources@esa.int).

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Please note that applications are only considered from nationals of one of the following State Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom and Canada, Latvia, Lithuania or Slovenia.

According to the ESA Convention, the recruitment of staff must take into account an adequate distribution of posts among nationals of the ESA Member States\*. When short-listing for an interview, priority will first be given to internal candidates and secondly to external candidates from under-represented or balanced Member States\*.

(<https://esamultimedia.esa.int/docs/careers/NationalityTargets.pdf>)

In accordance with the European Space Agency's security procedures and as part of the selection process, successful candidates will be required to undergo basic screening before appointment.

Recruitment will normally be at the first grade in the band (A2); however, if the candidate selected has little or no experience, the position may be filled at A1 level.

\*Member States, Associate Members or Cooperating States.