

## Mission and Payload System Engineer

**Job Req ID:** 12620

**Closing Date:** 15 September 2021

**Publication:** Internal & External

**Vacancy Type:** Permanent

**Date Posted:** 04 August 2021

Vacancy in the Directorate of Science.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and 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, The Netherlands

### Description

The Atmospheric Remote-sensing Infrared Exoplanet Large-survey (ARIEL) mission is the fourth medium-class mission in ESA's Cosmic Vision programme and is due to launch in 2029. ARIEL is a space telescope designed to observe at least 1000 known exoplanets using the transit method, studying and characterising the planets' chemical composition and thermal structures, enabling scientists to investigate how each one's chemistry is linked to the environment in which it forms. The objective of the mission is to answer fundamental questions about the characteristics of planetary systems as well as their formation and evolution. ARIEL will observe over visible and infra-red wavelengths using a combination of spectroscopy and photometry through two dedicated instruments operating in parallel. The payload is cooled to a cryogenic temperature via a combination of passive and active cooling systems. The complete payload module is being provided through nationally funded contributions from ESA Member States, led by the UK Space Agency.

You will report directly to the ARIEL Mission, Payload & AIV Manager, and will oversee and ensure the timely development and delivery of the payload subsystems under your responsibility, in line with ARIEL mission requirements, as well as supporting the Section's mission level activities.

### Duties

- Payload requirements engineering, for the payload subsystems under your responsibility, in collaboration with the Ariel Mission Consortium:
  - o Ensuring the correct, comprehensive flow down of Ariel project requirements, including applicable ESA standards, to payload system and subsystems
  - o Analysing payload requirements and constraints (at system and subsystem level) and ensuring flow down and consistency with lower-level payload requirements, as well as with spacecraft, launcher and ground segment requirements
  - o Overseeing the maintenance of payload requirements and budgets, including assessment of change requests and non-conformances
  - o Acting as joint custodian of the Ariel project requirements applicable to the

- o payload
  - o Ensuring that payload subsystems, along with their technical and programmatic interfaces, are correctly defined
- Payload design, development and verification:
  - o Overseeing the design and development of payload subsystems under your responsibility, ensuring robust design, with associated analysis and budgets, in line with requirements and interface definitions
  - o Ensuring the consistency of payload design and development, between payload units and between payload and other mission elements (spacecraft and ground segment)
  - o Providing management and technical support to the payload
  - o Leading routine payload subsystem interface and progress meetings
  - o Ensuring the maintenance and provision of mathematical models and interface documentation between payload units as well as between the payload and spacecraft
  - o Monitoring and controlling instrument performance and budgets
  - o Ensuring coherence and timely availability of contributing elements from the payload consortium, both to other payload consortium entities and to the Ariel Prime Contractor, in line with the project schedule and constraints
  - o Participating in ESA industrial procurement activities involving payload subsystems under your responsibility
  - o In collaboration with project AIV and PA engineers, supervising the payload subsystem manufacturing, integration and verification activities, and ensuring the proper verification of the requirements. This will include a review of the definition of the test plans and specifications, and participating in integration and test reviews, as well as monitoring and supporting integration and test activities.
- Support to spacecraft development and verification:
  - o Contributing to the definition and overseeing the progress of the work performed by the Ariel Prime Contractor related to payload accommodation and interface engineering, and ensuring the consistency of the spacecraft and payload design and development (technical and programmatic)
  - o Providing support to the Spacecraft Section and Ariel Prime Contractor with preparation of payload AIV activities at spacecraft level including launch campaign activities
- Operations preparation:
  - o Providing support to the Spacecraft Section, Ariel Prime Contractor, Science Ground Segment and Mission Operations Centre with the preparation of in-flight operations related to the payload
  - o Monitoring and supporting the definition of payload commissioning, performance verification and nominal flight operations plans and ensuring the provision of operations deliverables
- Participating in other Project and Department tasks where your experience is relevant.

You will coordinate and work closely with the Spacecraft Section and will be supported by D/TEC engineers as required.

### **Technical competencies**

Experience in development of optical scientific payloads for space missions, involving multiple interfaces (PI, scientific consortium, project, industry), preferably spanning a range of project phases

System engineering, in particular knowledge of ESA space system procurement, development and verification processes and standards (including code of best practices and project reviews)

Solid knowledge and understanding of requirements engineering and maintenance.

Management of industrial activities

Familiarity with science and payload performance analysis (radiometric/photometric modelling, image quality assessment), calibration, in-orbit commissioning and performance

verification

Experience with cryogenic payload development is an asset

### **Behavioural competencies**

Result Orientation

Operational Efficiency

Fostering Cooperation

Relationship Management

Continuous Improvement

Forward Thinking

### **Education**

A Master's degree in Engineering or Physics is required for this post.

### **Additional requirements**

- Results orientation includes having a proactive attitude and the ability to evaluate and plan professional tasks and ask for support when required.
- Teamwork includes the ability to work effectively with different teams on an interdisciplinary basis.
- Relationship management includes the ability to assess and be sensitive to different perceptions and groups and in resolving problems or conflicts.
- Proven ability to build positive relationships within a project team and with industrial partners.

### **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 States: 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 and 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 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.