

Training Opportunity for Portuguese Trainees

Reference	Specialist Area	Duty Station
PT-2010-TEC-ETC	Communication, TT&C & Security Systems & Techniques	ESTEC
<p><u>Overview of the Division missions:</u> The division is managing and providing the technical competence needed for the Agency's space projects in these areas:</p> <ul style="list-style-type: none"> • Systems, sub-systems and techniques for Communication, TT&C, navigation, remote sensing, and scientific applications. • End-to-end and RF communication security aspects for the support of ESA's missions and application programs. • Microwave and millimeter wave equipment and technologies, as required for payloads and user terminals. • Definition, development, integration and testing of complex on-board payloads (such as active front-ends for communications and remote sensing, and the processing core of such systems). 		
<p><u>Overview of the field of activity proposed:</u> A number of opportunities are available in the Communication-TT&C Systems & Techniques Section of the Payload Systems Division. In General the Sections offer opportunities in the following areas:</p> <ol style="list-style-type: none"> 1. Study of advanced broadband fixed and mobile telecommunication systems with particular emphasis on modulation, coding, access methods, synchronisation, medium access control resource allocation etc. In particular, advanced signal processing techniques applied to on-board and ground satcom system design, system and sub-system simulation tools as well as current multimedia application validations both in the field of fixed and mobile communications. 2. Satellite TT&C systems, techniques and transponders both for near earth and to distant planets. Communication systems and novel ranging techniques for deep space missions Advanced DSP for future MODEM implementation in particular for miniaturized transceiver for proximity link. Novel modulation techniques for in-situ (on planet surface) communications. 3. In the field of Security: <ul style="list-style-type: none"> • Assessment of the needs for protection of communication networks of current and future ESA programmes; • Analysis of the impacts of changes on the design of the system stemming from integration of security modules, and proposing cost effective implementations; • Analysis and simulations of satcom end-to-end secure equipments as well as dedicated security modules; • study and experiment on the communications performance of secure TT&C communications links • Analysis and simulations of modern cryptography mechanisms and key management systems 4. In the field of telecommunication applications and laboratory experimentations the following topics are of interest: <ul style="list-style-type: none"> • Definition of satellite communication applications test campaigns • Experimentation on the performance of advanced satellite communication systems in the division telecom laboratory • Validation of advanced application platforms targeting next generation satellite communication networks • Set-up and validation of satellite communication networks • Analysis and simulations of communication networks for QoS verification 		
<p><u>Required Education:</u> Applicants should have just completed, or be in their final year of a University course at Masters level in a technical or scientific discipline, in the fields of Telecommunications and/or Digital Signal Processing Engineering and/or Aerospace Engineering. Candidates must be fluent in English and/or French, the official languages of the Agency. Candidates should have a high degree of autonomy together with an attitude to work in a team environment. They should have good communication skills and an interest in innovative technologies.</p>		