

Research Studentships (for students of a course that does not award an academic degree)

Applications are open for 1 Research Studentship, within the framework of project M2N_GraPhy, (Ref. 1801P.01297), financed by PRR national funds, under the following conditions:

Scientific Area: Chemical Engineering—Process Systems Engineering

Admission Requirements: *to hold a bachelor and to be enrolled at a course that does not award an academic degree.*

Workplan: In the context of the Moving to Neutrality (M2N) Agenda, the IST team of project GraPhy is responsible for developing simulation, optimization and advanced control models for processes involving the production of ammonia from hydrogen generated from intermittent renewable energy sources (green H₂).

The work comprises: (i) literature review with the aim of identifying variants of the Haber-Bosch process, or alternative processes for the production of green ammonia; (ii) process data collection; (iii) process modelling in Aspen Plus; (iv) undertaking sensitivity analysis to study the influence of the most important process variables on key performance indicators; (v) heat and mass integration; (vi) parametric optimization with the goal of obtaining the process with lowest annualized cost; (vii) Life Cycle Assessment.

Legislation and Regulations: Statute of Scientific Research Fellow, approved by Law nr. 40/2004, of August 18, as worded by Decree-Law nr. 123/2019, of August 28; FCT Regulation for Research Studentships and Fellowships, available on <https://www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2019.pdf> and <https://dre.pt/application/file/a/127230968>.

Workplace: The work will be developed at Centro de Recursos Naturais e Ambiente (CERENA) of Instituto Superior Técnico, in the Synthesis and Process Optimization laboratory (LabSOP), Alameda Campus, South Tower, under the academic supervision of Prof. Henrique Matos.

Duration: The research fellowship(s) will have a duration of 3 months (non-renewable). It's expected to begin in July 2024.

Monthly maintenance allowance: According to the values for Research Fellowships awarded by FCT in Portugal (https://www.fct.pt/wp-content/uploads/2024/02/Tabela-de-Valores-SMM_atualizacao-2024.pdf), the amount of the monthly maintenance allowance is €990,98, being the payment method an option of the Fellow by Wire Transfer/Check.

Selection methods: The selection methods will be the following: Curriculum evaluation (50%) and an individual interview (50%).

Composition of the selection Jury: Henrique Aníbal Santos de Matos (Full Professor), Pedro Miguel Gil de Castro (Associate Professor with Habilitation), Diogo Alexandre Cipriano Narciso (Post-Doctoral Research Fellow).

Announcement/ notification of the results: The final evaluation results will be communicated to all applicants by email.

Deadlines and procedures of complaint and appeal. A complaint may be lodged from the final decision within 15 working days, or an appeal to the Executive Board of IST-ID within 30 working days, both counted from the respective notification

Application deadline and formalization: The call is open from June 21 until July 4, 2024.

It is mandatory to formalize applications with the submission of the following documents: i) B1 Form – Fellowship application (<https://ist-id.pt/concursos/bolsas/>); ii) *Curriculum Vitae*; iii) academic degree certificate, where applicable; iv) proof of enrollment at an academic degree course; v) motivation letter; vi) declaration on honor that the applicant does not exceed with this contract, including the possible renovations, an accumulated period of one year in this type of studentship, continuously or with interruptions, and has not held any other fellowship directly or indirectly funded by FCT.

Applications must be submitted to the email: henrimatos@tecnico.ulisboa.pt

Questions regarding the application should be addressed to: henrimatos@tecnico.ulisboa.pt