

PUBLIC NOTICE FOR A RESEARCH SCHOLARSHIP

Reference BII GHF2022

IPC/ i2A is now accepting applications to award 1 **Research Scholarship** (BII) within the scope of the project “Tool development and characterization of metallic materials submitted to CNC machining operations”, reference GHF2022, through the program National Institute for Metalworking Skills (USA), as follows:

1-The aim of the Research Scholarship is to follow the next Project Tasks:

- Bibliographic review and state of the art concerning the characterization of machining operations of metallic materials, focused particularly on the drilling operation;
- Operation of Haas UMC 750SS CNC machining center and other CNC machine tools;
- Programming of machining operations with CAD/CAM software (Mastercam) and use of equipment for characterizing materials and tools;
- Programming with Matlab and Labview software to implement signal data acquisition, particularly focused on the vibration signal (Fast Fourier transform, RMS, etc).

Generic Scientific Area: Mechanical Engineering

Specific Scientific Area: Manufacturing Technology

2-Requirements:

Be a student enrolled in a degree or a master's degree in Mechanical or Electromechanical Engineering, aiming at the beginning of their scientific training.

Have knowledge preferably in:

- a) Research and review of scientific literature;
- b) 3D modeling;
- c) Operation of CNC machine tools and CAD/CAM programming;
- c) Labview and Matlab software.

3-Work Plan:

The work plan to be developed will initially include the identification and study of scientific and industrial works carried out under similar conditions, as well as the definition of the conditions of experimental tests in collaboration with the industrial partner of this work (Palbit S.A, Cutting Tools). Subsequently, comparative tests will be carried out with different tools and machining parameters. The characterization of the tools and materials used will be carried out, using for this purpose the characterization techniques available and others to implement.

4-Scholarship Length:

4 months, non-renewable, in exclusivity, in accordance with the Regulation of Research Grants of the Instituto Politécnico de Coimbra, approved by Despacho n.º 5963/2020, published in the 2nd series of the DR of June 1, 2020 in force, scheduled to begin in May 2022.

5-Monthly Maintenance Allowance:

486,12 euros, according to the table of scholarship amounts awarded by FCT to positions held in Portugal (www.fct.pt/apoios/bolsas/valores). The payment will be made by bank transfer.

To this amount is added the voluntary social insurance corresponding to the first tier, and a workplace accident insurance contract.

6-Workplace:

The work will be developed at ISEC of the Polytechnic of Coimbra, in the Laboratory of Computer Aided Manufacturing and in the Laboratory of Applied Biomechanics of i2A/ISEC/IPC, under the scientific supervision of Professors Fernando Simões, Pedro Ferreira and Patrícia Santos.

7-Selection Criteria:

The merit of candidates is determined by the following parameters, according to the following weights:

- Candidate's profile to the needs of the scholarship (Research and review of scientific literature; knowledge of manufacturing technologies and manufacturing, acquisition and data processing software) - Weighting 40%
- Experience in the area of tasks to be carried out or tasks related to those that are expected to be carried out - Weighting 30%;
- Availability and flexibility of schedule - Weighting 20%;
- Motivation and Autonomy - Weighting 10%.

8-Jury of Selection:

The jury responsible for the selection process is composed by PhD Professors 3 effectives and 2 substitutes

Effectives:

Professor Fernando António Gaspar Simões;
Professor Doutor Pedro Miguel Soares Ferreira;
Professor Patrícia Sofia Simões Santos.

Substitutes:

Professor Urbano Manuel Oliveira Ramos;

Professor Luís Manuel Ferreira Roseiro;

9-Mandatory Documents:

The applications must include the following documents:

- Motivation letter;
- Curriculum vitae;
- -Copy of qualification certificates and proof of registration.
- Other documents relevant to the evaluation.

None of the previously referred documents can be submitted after the deadline presented in this scholarship offer.

10-Deadline of Applications Submission:

The application period will be of 10 working days, between 03/05/22 and 16/05/22.

Applications should be sent by email to bolsas.investig@ipc.pt, indicating the fellowship reference (mandatory): **BII GHF2022**

11-Legislation and applicable Regulation:

The award of this scholarship is based in the Law 40/2004, of the 18th of August (Estatuto do Bolseiro de Investigação Científica), changed and republished by the Decree-Law 202/2012, of the 27th of August, updated by: Decree-Law 233/2012, Law 12/2013, Decree-Law 89/2013 and Decree-Law 123/2019; the Regulation of the research scholarships from the Fundação para a Ciência e a Tecnologia, I. P. and the Regulation of the Research Scholarships from Coimbra Polytechnic Order nº 5963/2020

12-Information of Results:

All candidates will be notified by e-mail.

According to the terms of the Administrative Procedure, the applicants will have 10 working days, after the release of the results, to pronounce themselves under the frame of the prior hearing.

For further information please contact:

Professor Fernando Simões (fsimoes@isec.pt), indicating the reference of fellowship (mandatory): **GHF2022..**

Coimbra, 1st of april 2022.