NOTICE No. 001/2022, february 14, 2022

Admission Process to Doctoral Course at LNCC Graduate Program in Computational Modeling

The Commission for Evaluation and Selection (CAS-Comissão de Avaliação e Seleção) of the Graduate Program in Computational Modeling of the National Laboratory for Scientific Computing LNCC/MCTI announces that registration for the Admission Process to its *stricto sensu* Doctoral Course is open, according to this Notice.

1. PROGRAM AND TARGET AUDIENCE

The LNCC's (PG-LNCC) Graduate Program in Computational Modeling aims at providing a multidisciplinary advanced education in Computer Sciences, Applied Mathematics and Modeling to Graduates in Mathematics, Physics, Chemistry, Engineering, Computer Science, Biology, Economics or other related areas.

For admission to the PG-LNCC Doctoral Program the candidate must have concluded a Master's degree (*stricto sensu)* in one of the above areas.

Note: Re-admission of former students who have been dismissed from the PG-LNCC is only possible after two years from the dismissal date.

2. ENROLLMENT

The registration for this Admission Process will be open according to the schedule provided in section 5. It must be made via Internet by filling the online form available at the site http://posgrad.lncc.br/ and uploading electronic copies of the documents listed below.

By signing up to this Admission Process, the candidate declares to know and accept the rules set forth herein and the PG-LNCC's Bylaws, available at the site http://posgrad.lncc.br/en/regiment-of-the-program.

Required documents:

Brazilians

1. Identity Card and CPF;
2. Lattes CV (see Lattes Platform http://lattes.cnpq.br/);
3. Statement Letters from representatives of educational institutions or companies where the applicant had Scientific Initiation, Internship and/or had gained Professional Experience, indicating the exact **beginning and end of the** periods of carrying out these activities. These statement letters may be written in Portuguese, Spanish or English;
4. Official transcription of records of the applicant's under-graduate course containing explicit information on Grade Point Average (GPA) and grading scales involved, i.e., the mapping

from letter grades to a numerical scale, where applicable. **Lack of explicit information on the GPA will imply ignoring it in the N1 score (see section 3).**

5. Official transcription of records of the applicant's Master course, containing explicit information on the GPA and the grading scale involved, i.e., the mapping from the letter grades to a numerical scale, if applicable. **Lack of the GPA information will hinder the N1 score (see section 3).**
6. Undergraduate diploma (it can be substituted by a declaration of conclusion);
7. Master degree diploma or alternatively a letter from the administration representative of the graduation institution attesting that the candidate is a Master's graduate student and stating the expected graduation date;
8. Letter of Intentions explaining candidate's previous experiences in the areas of this Public Edict (Section 1), his(her) motivation and area(s) of interest to enter the PG/LNCC (maximum one page);
9. Additional documents **(single file)** according to Appendix I.
10. Spreadsheet available in Appendix II, which should be filled in, according to the rules defined in Appendix I.

Foreigners

1. Passport
2. Curriculum Vitae;
3. Letters from representatives of educational institutions or companies where the applicant had Scientific Initiation, Internship and had gained Professional Experience, with descriptions of the developed activities and information on **their start and end dates**;
4. Official transcription of records of the applicant's under-graduate course containing explicit information on Grade Point Average (GPA) and grading scales involved, i.e., the mapping from letter grades to a numerical scale, where applicable. **Lack of explicit information on the GPA will imply ignoring it in the N1 score (see section 3).**
5. Official transcription of records of the applicant's Master course, containing explicit information on the GPA and the grading scale involved, i.e., the mapping from the letter grades to a numerical scale, if applicable. **Lack of the GPA information will hinder the N1 score (see section 3).**
6. Undergraduate diploma (it can be substituted by a declaration of conclusion);
7. Master degree diploma or, alternatively, a letter from an administration representative of the graduation institution attesting that the candidate is a Master's graduate student and stating the expected graduation date;
8. Letter of Intentions explaining candidate's previous experiences in the areas of this Public Edict (Section 1), his(her) motivation and area(s) of interest to enter the PG/LNCC (maximum one page);
9. Additional documents **(single file)** according to Appendix I.
10. Spreadsheet available in Appendix II, which should be filled in, according to the rules defined in Appendix I.

Note: The documents referred to in the items 3 to 10 above may be presented in Portuguese, Spanish or English. **Do not include documents of any sort that are not strictly those required in this Notice.**

3. ADMISSION PROCESS

The Admission Process will be held in two stages:

First Stage: Document analysis and pre-selection of candidates based on the quantitative assessment their curricula vitae, defined by the N1 score (between 0 and 10) described in Appendix I.

Second Stage: Candidates pre-selected in the First Stage will be examined orally on the content of their academic transcripts; letter of intentions and other submitted documents, as well as their interests and previous experience in topics related to Computational Modeling (Mathematics, Modeling and Computation). A N2 score (between 0 and 10) will be assigned to the candidate's performance on the oral examination.

Notes: The oral examination may be held via videoconference, provided that the candidate requests it when applying to the admission process. The LNCC will not be responsible for providing technical resources and equipment or for operational failures that may occur during the video conferencing process.

4. CLASSIFICATION AND ELIMINATION CRITERIA

First Stage:
Classification criterion: Candidates will be sorted in descending order of N1 Scores (see Appendix I). **Elimination criterion:** Up to 1.5V candidates will be selected to participate in the Second Stage if the candidate's N1 Score is greater or equal to 7.0, where V is the number of vancancies available in this Admission Process (see section 6).

Second Stage:
Classification criterion: candidates will be ranked in descending order of their Final Score NF = (4 × N1 + 6 × N2) / 10. **Elimination criterion:** Up to V candidates with Final Score (NF>=7.0) will be accepted to enroll in the PG-LNCC Doctoral Program, where V is the number of available vacancies in this admission process (see section 6).

5. CALENDAR

Application Period: from March 07 (8:00 a.m.*)to April 11, 2022 (6:00 p.m.*)*GMT-3
Result of First Stage: May 11, 2022.
Second Stage: from May 17-19, 2022.
Final Result of the Admission Process: May 23, 2022
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The results of each stage will be announced on the LNCC website (http://www.posgrad.lncc.br/), and the final result will also be sent to the applicant via e-mail.

6. NUMBER OF VACANCIES
Six **(6) vacancies** are offered in this Admission Process.

7. ENROLLMENT IN THE PG-LNCC PROGRAM
Accepted candidates must enroll in the PG-LNCC Doctoral Program in **June or September**, abiding by the 2022 academic calendar (available in the PG-LNCC homepage), at the

Secretariat of the Graduate LNCC program, from 09:00 am to 12:00 pm and from 1:00pm to 4:30pm.

The enrollment approval is subject to the presentation of the following authenticated documentation: Passport, transcript(s) of records and diploma(s) or master degree certificate(s).

8. VALIDITY OF THE ADMISSION PROCESS

The result of this Admission Process is valid for **4 months** from the date of publication of the final result.

9. APPEALS

Any appeals against the results of each stage of this Admission Process must be submitted in writing to the LNCC Coordination of Graduate Studies in Computational Modeling Program within **48 (forty-eight) hours** from the date the result of each stage is published.

10. GENERAL PROVISIONS

The information provided by the applicant will be his/her sole responsibility and any candidate may, at any time, be excluded from the Admission Process if proven that any provided document and/or information was fake or untruthful.

The cases not covered herein shall be resolved by the LNCC RESEARCH AND HUMAN RESOURCES TRAINING COUNCIL (CPFRH – Conselho de Pesquisa e Formação de Recursos Humanos).

Appendix I

p_0	General Point Average (GPA) of the Master's course[1] adjusted to the range between 0 to 10 (decimal)
p_1	Capes Concept[2]. Rank of the course, in the range of 3 to 7
p_2	General Point Average (GPA) of the undergratuation course[1] adjusted to the range between 0 to 10 (decimal)
p_3	Ministry of Education evaluation index[3] for the course, in the range of 1 to 5
p_4	Scientific Initiation (in years); minimum 6 months[4]
p_5	Experience/internship in the training area related to the PG-LNCC (in years); Minimum of 1 year and within the last 5 years[5], in areas related with the PG/LNCC (Section 1).
p_6	Published full paper in an indexed journal[6] **with editorial board and peer review** (in number of articles in the past 5 years), in areas related with the PG/LNCC (Section 1).
p_7	Published full paper in conferences or in a non-indexed journal[7] **with editorial board and peer review** (in number of articles in the past 5 years), in areas related with the PG/LNCC (Section 1).
p_8	Published abstracts in conferences[8] (in number of abstracts in the past 5 years) , in areas related with the PG/LNCC (Section 1).
p_9	Honors and academic awards[9]: (a) Best thesis, dissertation, paper, software in International or National level: value 1.0; (b) medalist in Academic Olympiads, best poster, paper/software in congress, best national Scientific Initiation work: 0.5; (c) Regional Academic Awards: 0.25 (NOTE: Maximum value for this parameter is 1.5)
p_{10}	Diplomas in more than one (different) undergraduate courses[10], $p_{10} \in \{0, 1\}$ 1 = more one diploma 0 = one diploma

The parameters p_4 to p_9 will be set base on the information provided in the CV of the candidate and from the supporting documentation provided. **According to the documents required (item 9), the candidates must describe in full in the spreadsheet provided in Appendix II the values of the required parameters.**

[1]For candidates with multiple undergraduate and/or Master's degrees: the GPA of only one undergraduate course will be considered for p_2 and the GPA of only one graduate course will be considered for p0. The candidate must decide which one to fill in in the form provided in Appendix III.

[2]The value 4 will be assigned if CAPES has not ranked the course. If the candidate understands that, in the absence of a CAPES concept, his/her stricto sensu master's degree should be given a higher score than the standard value defined in the previous sentence, the candidate may attach, at the time of registration, a letter (1 page) and documentation that support his/her argument. CAS then evaluates the candidate's request, deciding the grade to be attributed to his/her master's degree course (4 to 7).

[3]Continuous CPC or, if inexistent that, a value equal to 2 + d, where d = 0 if the course nominal duration is less than 2400 hours and d = 1 otherwise. If the candidate understands that, in the absence of CPC, his/her undergraduate course should be given a higher grade than the standard
value defined in the previous sentence, the candidate can attach, at the time of registration, a letter (1 page) and documentation to support his/her argument. CAS then evaluates the candidate's request, deciding the grade to be attributed to his/her undergraduation course (2 to 5).

[4]Append to the documentation the Statement Letter from the educational institutions where the applicant had Scientific Initiation, with the dates of start and end of each scientific initiation project. The value of p_4 must be necessarily supported by formal evidence given in the Statement Letters. The Statement Letters may be written in Portuguese, English or Spanish.

[5]Append to the documentation Statement Letters of the institutions (or companies) where the internship was conducted or where professional experience was obtained, stating the exact period when the activities were carried out. The value of p_5 must be necessarily supported by formal. The Statement Letters may be written in Portuguese, English or Spanish.

[6]Only full-papers published in journals indexed by Scientific Citation Index Expanded (http://ip-science.thomsonreuters.com/mjl/) will be considered. **Append to the documentation the first page of each paper, stating the month and year of publication.**

[7] Only full-papers (5 or more pages) published in conferences and non-indexed journals will be considered. Append to the documentation the first page of each paper, stating the month and year of publication **in order to prove the publication of the paper in the proceedings of the event (a certificate for paper presentation does not prove the paper's publication).**

[8]Append to the documentation the first page of each paper, stating the month and year of publication **in order to prove the publication of the paper in the proceedings of the event (a certificate for paper presentation does not prove the paper's publication).**

[9]Append to the documentation the certificates corresponding to each award received. **Do not append certificate of participation of events, courses, etc.**

[10] Distinct course (s), according to the areas identified in section 1, from that used in the calculation of parameter p_2.

N1 calculation formula

$$\mathrm{N1} = \min\{\mathcal{J}(p_0, ..., p_{10}); 10, 0\}$$

$$\begin{aligned}\mathcal{J}(p_0, ..., p_{10}) &= \alpha p_0 \sqrt{\frac{100}{7} p_1} + \gamma p_2 \sqrt{20 p_3} \\ &+ \beta\{f(p_4) + 0,5 f(p_5) + 2 f(p_6) + f(p_7) + 0,25 f(p_8) + p_9 + p_{10}\}\end{aligned}$$

$$f(x) = \rho\,\mathrm{signal}(x) + \frac{x}{5};\ \alpha = 0,065;\ \gamma = 0,035;\ \beta = 0,7;\ \rho = 0,5;$$

$$\mathrm{signal}(x) := \begin{cases} 1, & x > 0, \\ 0, & x = 0, \end{cases}$$

APENDIX II

Spreadsheet for the calculation of **N1 (see examples at the bottom of this page)**

Parameters		Write out in full
p_0	General Point Average (GPA) of the Master's course[1] adjusted to the range between 0 to 10 (decimal)	
p_1	Capes Concept[2]. Rank of the course, in the range of 3 to 7	**To be filled by PG-LNCC**
p_2	GPA of the undergratuation course[1] adjusted to the range between 0 to 10 (decimal)	
p_3	Ministry of Education evaluation index[3] for the course, in the range of 1 to 5	**To be filled by PG-LNCC**
p_4	Scientific Initiation (in years); minimum 6 months[4]	
p_5	Experience/internship in the training area related to the PG-LNCC (in years); Minimum of 1 year and within the last 5 years[5], in areas related with the PG/LNCC (Section 1)	
p_6	Published full paper in an indexed journal[6] **with editorial board and peer review** (in number of articles in the past 5 years), in areas related with the PG/LNCC (Section 1)	
p_7	Published full paper in conferences or in a non-indexed journal[7] **with editorial board and peer review** (in number of articles in the past 5 years), in areas related with the PG/LNCC (Section 1)	
p_8	Published abstracts in conferences[8] (in number of abstracts in the past 5 years), in areas related with the PG/LNCC (Section 1)	
p_9	Honors and academic awards[9]: (a) Best thesis, dissertation, paper, software in International or National level: value 1.0; (b) medalist in Academic Olympiads, best poster, paper/software in congress, best national Scientific Initiation work: 0.5; (c) Regional Academic Awards: 0.25 (NOTE: Maximum value for this parameter is 1.5)	
p_{10}	Diplomas in more than one (different) undergraduate courses[10], $p_{10} \in \{0, 1\}$ 1 = more one diploma 0 = one diploma	
Final Concept N1 Score		

[1]Example (Master Performance Coefficient): 3 grades A (=4 each) and 1 grade B(=3)=> (4x3+1x2=15)/4=3.75. Hence (3.75X10.0)/4=9.375

[2,3]Examples:

p_4(Scientific Initiation)=> from 09/01/15 to 01/31/16 + 02/01/17 to 04/18 = 5 months + 14 months=19/12 years = 1.583 years.

p_5(Experience/internship)=> from 01/02/2016 to 31/01/18 = 24 months=24/12 years=2 years. The maximum value of this parameter is 5. Solamente experiencias a partir de 2016.

[4]Only articles published from 2017 onwards.

[5]Examples: Matemathics and Physics degrees => p_{10}=1.