DEAN OF RESEARCH AND GRADUATE STUDIES
SELECTION PROCESS FOR ADMISSION TO THE GRADUATE PROGRAM IN PROCESS AND TECHNOLOGY ENGINEERING – MASTERS

Public Notice 02/2025

1. Opening

The Pro-Rector of Research and Graduate Studies of the University of Caxias do Sul makes public the conditions governing the Selection Process for admission to the Graduate Program in Process for Technology Engineering (PGEPROTEC) – Master's Degree, to be carried out at Cidade Universitária, Caxias do Sul, for admission in the second semester of 2025.

2. Registration

2.1 Dates and place

Registration will be carried out using an online form available on the Program's selection process webpage, from March 28th to June 23th, 2025.

The registration's approval will be announced on June 27th, 2025 at https://www.ucs.br/pgeprotec

2.2 Registration fee

The registration fee for the Selection Process is R$ 150.00 (one hundred and fifty Reais).

Candidates who are UCS graduates will have a 30% discount on the registration fee.

2.3 Documents

The documents required to register are as follows:

- Duly completed online registration form;
- Copy of ID, CPF or National Driving License or Passport;
- Copy of Birth, Marriage or Divorce Certificate (waived for foreigners);
- Front and back copy of the Undergraduate diploma (waived for UCS graduates);

- Copy of undergraduate academic record (waived for UCS graduates);

- Front and back copy of the Specialization course certificate (if any), accompanied by the respective academic record;

Note: The diploma and transcript of undergraduate and master's degrees, whose country of origin is a signatory to the Hague Convention, must be apostilled, in accordance with CNJ Resolution No. 228, of 2016, of the National Council of Justice (available at https://www.cnj .jus.br/poder-judiciario/relacoes-internacionais/apostila-da-haia/) and subsequently translated by a sworn translator. Documents originating from non-signatory countries must be authenticated by a competent consular authority and subsequently translated by a sworn translator.

- Curriculum Vitae, for foreigners;

- Two letters of recommendation signed by professors, researchers or other renowned professionals in areas related to the Program or a brief description (maximum of 1 A4 page), prepared by the candidate, of their previous experience in research as a junior research fellow and/or research and development in a company. The description must be accompanied by a receipt issued by the higher education institution or company indicating the period of experience.

2.4 Posting of documents

The documentation required to participate in the selection process must be posted by uploading it when filling out the online form. Applications with incomplete documentation will not be accepted.

3. Positions

Ten (10) positions are offered for the research lines of: Chemical and Physical Processes and Biomass Energy and Environment Processes, according to the availability of guidance from the program's professors.

4. Cancellation of course offering

The University reserves the right not to carry out the selection process referred to in this document, if the number of applicants is considered insufficient to carry out the course. Any suspension of the Selection Process will be communicated in advance, in which case registered candidates will be guaranteed a refund of the registration fee.

5. Selection

The selection process for admission to the PGEPROTEC, conducted by a Committee made up of teachers appointed by the Program Board for this purpose, will comprise two stages:

1st Stage - Qualifying

It will consist of a test of interpretation of scientific texts (weight 40%) and a test of general knowledge (weight 40%) on July 01th, 2025, starting at 6pm and ending at 10pm, online. The access link will be sent to candidates on June 30th, 2025.

General Knowledge Test Program:

GENERAL AND INORGANIC CHEMISTRY

Chemical bonds.

Intermolecular forces.

Balancing chemical equations and stoichiometric calculation.

Inorganic functions.

Solutions.

Electrochemistry.

Recommended Bibliography:

ATKINS, Peter W.; JONES, Loretta. Principles of chemistry: questioning modern life and the environment. Porto Alegre: Bookman, 2007. 1042 p.

RUSSEL, J. B. General Chemistry. Vol. 1 and 2. McGraw-Hill do Brasil, 1994.

KOTZ, J.C., TREICHEL Jr., P., Chemistry and Chemical Reactions. 3rd. ed. Rio de Janeiro, LTC, 1998

ORGANIC CHEMISTRY

Structure and properties of carbon.

Organic functions: aliphatic and aromatic hydrocarbons, alcohols, carboxylic acids, phenols, esters, aldehydes, ketones.

Polymers: main thermoplastic and thermoset polymers, characteristics and applications.

Recommended Bibliography:

Mc MURRY,. Organic Chemistry. 6th ed. Rio de Janeiro: Guanabara Two. 2002.

ALLINGER, N. L. et al. Organic Chemistry. 4th ed. Rio de Janeiro: Guanabara Two. 2002.

PHYSICAL

Newton's Laws, applications.

The law of conservation of mechanical energy. Fluids at rest (density, specific mass and pressure). Pascal's principle. Archimedes' principle.

Fluids in motion (Bernoulli equation and viscous flow).

Recommended Bibliography:

HALLIDAY, D.; RESNICK, R.; WALKER, J.; Fundamentals of Physics, Vol. 1,2,3. 7th edition. Rio de Janeiro: LTC, 2006.

SERWAY, R., JEWETT, JR., J, W; Principles of Physics 1,2, São Paulo: Thomson, 2004.

TIPLER, P. A.; Physics Volume 1.2 4th edition, Rio de Janeiro: LTC, 2000.

FEYNMAN, R. P., LEIGHTON, R. B., SANDS, M. Physics Lessons, São Paulo, Ed. Bookman, 2008.

HEWITT, P.; Conceptual Physics, 9th edition. Porto Alegre: Bookman, 2002.

THERMODYNAMICS

Heat and temperature.

Work and energy.

Laws of thermodynamics: first and second laws of thermodynamics, heat engines and refrigerators and entropy.

Recommended Bibliography:

SMITH, J.M., VAN NESS, H.C., ABBOTT, M.M., Introduction to thermodynamics of chemical engineering, 7 ed, LTC - Livros Técnicos e Cientéticos Editora Ltda, Rio de Janeiro, 2007.

FLUID MECHANICS

Properties of fluids and continuous media. Comparative analysis between momentum transfer phenomena (Newton’s Law of Viscosity). Dimensions and unit systems.

Reynolds number.

Newton's law of viscosity and rheology of fluids: Newtonian and non-Newtonian fluids.

Recommended Bibliography:

FOX, R.W.; MCDONALD, A.T, PRITCHARD, P.J. Introduction to Fluid Mechanics. 7th ed. Rio de Janeiro: LTC, 2010.

ÇENGEL, Y.A, CIMBALA, JOHN M. Fluid Mechanics - Fundamentals and Applications. McGraw-Hill, 2007.

HEAT TRANSFER

Mechanisms and equations of heat transfer rates by conduction, convection and radiation.

Combined heat transfer mechanisms.

Energy conservation balances.

Recommended Bibliography:

ÇENGEL, Y.A. Heat and Mass Transfer - a practical approach. McGraw-Hill. 2009.

INCROPERA, Frank P.; DEWITT David P.; BERGMAN, T.L.; LAVINE, A. Fundamentals of Heat and Mass Transfer. 6.ed. Rio de Janeiro: LTC, 2008, 644 p.

WASTE RECOVERY, REUSE AND RECYCLING PROCESSES

Processes for obtaining energy from the recovery of biomass, industrial and post-consumer waste;

Recovery, reuse and recycling processes aimed at environmental preservation and sustainability;

Recovery of waste from the treatment of urban and industrial effluents, control and remediation of pollution in soil, water and atmosphere.

Recommended Bibliography:

BORGES NETO, M. R.; CARVALHO, P. C. M. de. Electric power generation: fundamentals. 1st ed. São Paulo, SP: Érica, 2013.

METCALF & EDDY, Inc. Wastewater engineering: treatment and reuse. Boston:McGraw-Hill, 2003.

TCHOBANOGLOUS, G., THEISEN, H.; VIGIL, S.A. Integrated Solid Waste Management: Engineering Principle and Management Issue. McGraw Hill Inc., New York, 1993.

2nd Stage - Qualifying

It will consist of an analysis of the Lattes CV, letters of recommendation, undergraduate academic transcript and an interview. This stage will correspond to 20% of the candidate's final grade.

The interview will be scheduled on June 30th, 2025, after the application has been approved. The interviews will take place on July 03th, 2025.

The evaluation criteria established by the Program for these stages are:

a) Candidate's ability to interpret appropriate scientific texts, through an individual test, weighing 40%.
b) Candidate's ability to present general knowledge on topics related to those applicable to PGEPROTEC, through an individual test, weighing 40%.
c) Validation of the required academic training, as well as scientific performance, through the evaluation of the Lattes curriculum and the candidate's academic record, with a weight of 10%.
d) Clear explanation of the reasons for the candidate's candidacy, through an interview conducted by a Selection Committee composed of 02 (two) professors accredited by the Program. Verification of the candidate's nomination, through letters of recommendation sent by qualified professionals from higher education institutions, considering the candidate's relevant potential, with a weight of 10%.

6. Preliminary results and selection of those approved

Candidates who obtain a minimum final grade of 7.0 (70% pass), on a scale of 0 to 10, as established in article 203 of the UCS General Regulations, will be considered approved. If there are withdrawals, subsequent approved candidates will be called, in order of classification, until the number of vacancies is filled.

In the event of a tie in the result, the tiebreaker criterion will be the grade of the interview score. Omitted cases are resolved by the Postgraduate Committee.

7. Publication of preliminary results

The names of preliminarily selected candidates will be announced on July 09th, 2025.

8. Appeal

All candidates will have the possibility of filing an appeal against the decision made by the selection committee, which must be assessed and judged by a higher court than the one that made the questioned decision.

To lodge the appeal, the candidate must present a document, written by him/herself, explaining the reasons for the request.

The appeal must be sent by email (pgeprotec@ucs.br) from July 10th, 2025.

The response to the appeal will be made by July 14th, 2025.

9. Disclosure of the final result

The names of selected candidates will be announced on July 16th, 2025.

10. Enrollment

Enrollments will take place on July 17th and 18th, 2025, in accordance with guidelines to be published with the results of the selection process.

11. Special cases

The candidate with a disability who requires special assistance to participate in the selection must, by June 23, 2025, formalize a specific request to the Selection Committee, as well as present a report issued by a specialist, explaining the nature, type and degree disability and the recommended conditions to enable the candidate's participation in the selection process, to the email (pgeprotec@ucs.br). The Selection Committee will officially inform by June 26, 2025, the total, partial or impossibility of meeting the recommended conditions.

12. Timeline

Date	Stage	Place
28/03/2025 a 23/06/2025	*Online registration*	*Online form filling*
Until 23/06/2025	Special cases – formalization of the request	*E-mail* pgeprotec@ucs.br
26/06/2025	Special cases – result from the Selection Committee	Candidate's e-mail
27/06/2025	Approval of registrations	https://www.ucs.br/pgeprotec
01/07/2025	1st Stage - Interpretation and general knowledge test	Link to be sent to candidates with approved registration
03/07/2025	2st Stage - Candidate Interview	Link to be sent to candidates with

		approved registration
09/07/2025	Announcement of the preliminary result	https://www.ucs.br/pgeprotec
Until 10/07/2025	Appeal request	*E-mail* pgeprotec@ucs.br
14/07/2025	Appeal result	Candidate's e-mail
16/07/2025	Disclosure of the final result	https://www.ucs.br/pgeprotec
17/07/2025 e 18/07/2025	Enrollment	*E-mail* pgeprotec@ucs.br

13. Validity of the selection process

The selection process, object of this document, is only valid for admission in the second semester of 2025 to the Postgraduate Program in Process for Technology Engineering for the Master's Course.

14. Final dispositions

Successful candidates who were not selected in this selection process may request enrollment as a non-regular student to study isolated subjects, in accordance with the PGEPROTEC Regulations.

15. Omitted cases

Omitted cases will be evaluated by the Selection Committee, after hearing, if deemed necessary, the relevant academic bodies.

Caxias do Sul, March, 28th 2025.

Prof. Dr. Everaldo Cescon
Pro-Rector of Research and Graduate Studies