

**University of Campinas**  
**School of Chemical Engineering**  
**Public notice**

The Director of the School of Chemical Engineering at the University of Campinas, through the General Secretariat, announces the opening of registrations for the public hiring process, for the filling of 01 position(s) of Assistant Professor, in RTP (Partial Time Regime), with preferential option for the RDIDP (Regime of Full Dedication to Teaching and Research), under the terms of item 2, in the area(s) of Science and Sustainable Processes, in the subject(s) EQ251 - Process Design 2 and EQ280 - Engineering and Sustainability 1 , in the Process Engineering Department of the School of Chemical Engineering at the University of Campinas.

**1. MINIMUM APPLICATION REQUIREMENTS**

- 1.1. Candidates who, at least, hold a PhD Degree may apply in the hiring process.
- 1.2. It is desirable that the candidate has the following profile:
  - 1.2.1. Graduated in Chemical Engineering or related areas and with research experience in Sustainable Processes;
  - 1.2.2. The application of a candidate who does not meet the desirable profile will not be rejected for this reason.

**2. WORKING REGIME**

- 2.1. Pursuant to article 109 of the UNICAMP Statute, the Regime of Full Dedication to Teaching and Research (RDIDP) is the preferential regime of the faculty and its purpose is to encourage and favor the carrying out of research in the different areas of knowledge, as well as, correlatively, contribute to the efficiency of teaching and to the dissemination of ideas and knowledge to the community.
- 2.2. By enrolling in this public hiring process, the candidate is aware and agrees that, in the case of admission, the presentation of a research plan may be requested, at the discretion of the Congregation of the Unit, which will be submitted to the Permanent Commission for Full Dedication to Teaching and to Research (CPDI), for evaluation of possible entry into the Regime of Full Dedication to Teaching and Research (RDIDP).
- 2.3. The Regime of Full Dedication to Teaching and Research (RDIDP) is regulated by Deliberation CONSU-A-02/2001, whose full text is available on the website (*available only in Portuguese*):

[http://www.pg.unicamp.br/mostra\\_norma.php?consolidada=S&id\\_norm=2684](http://www.pg.unicamp.br/mostra_norma.php?consolidada=S&id_norm=2684).

2.4. Retirees in the teaching career approved in the public hiring process can only be admitted to the Partial Work Regime (RTP), with the extension to the Full Time Dedication to Teaching and Research System (RDIDP) prohibited, in accordance with Resolution CONSU-A-08/2010.

2.5. The initial remuneration for the position of Assistant Professor, MS-3.1, of the Superior Teaching Career is as follows:

- a) RTP - BRL 2,315.38
- b) RTC - BRL 5,877.38
- c) RDIDP - BRL 13,357.49

### **3. APPLICATION**

3.1. Application must be made exclusively through the link <https://solicita.dados.unicamp.br/concurso/> within a period of 20 (twenty) business days, starting at 9 am on the first business day following the publication of this notice in the Official State Gazette (DOE), up to 23 hours and 59 minutes of the last day of the registration period.

3.2. At the time of application, a registration request must be submitted, through the registration system, addressed to the Director of the School of Chemical Engineering, containing name, address and profession, accompanied by the following documents:

- a) Proof that the candidate holds a PhD title valid in Brazil. For registration purposes, the candidate may only present the Acta of the defense of his Doctoral Thesis, or equivalent official document, and proof of the Doctor's title will be required at the time of admission. The candidate who has obtained the PhD title abroad, if approved, must obtain, during the probationary period, the recognition of said title for purposes of national validity, under penalty of dismissal;
- b) personal identification document, in digital form (pdf);
- c) a digital copy (pdf) of the candidate's records, with the report of the activities carried out and the proof of the published works and other information, that allow the evaluation of the merits of the candidate, namely:
  - c.1. university degrees;
  - c.2. *curriculum vitae et studiorum*;
  - c.3. scientific, didactic and professional activities;
  - c.4. honorary titles;
  - c.5. graduate-level scholarships;
  - c.6. attended courses, conferences, symposiums and seminars attended.

- d) a full copy of each work or document mentioned in the memorial, in digital form (pdf);
- e) work plan.

3.2.1. The report may be added, instructed or completed up to the date set for the closing of entries.

3.2.2. The candidate with special needs, temporary or permanent, who needs special conditions to undergo the tests must request them in writing at the time of registration, indicating the adaptations he/she needs.

3.2.3. At the time of registration, the candidate may express, through the registration system, the intention to take the tests in English. The contents of the tests carried out in English and Portuguese will be the same.

3.2.4. Unicamp is not responsible for requests for registration via the Internet that are not received due to technical reasons for the computers, communication failures, blockage of communication lines, as well as other factors that make it impossible to transfer data.

3.2.5. After completing the registration at the link indicated in item 3.1, with the submission of the requested documents, the candidate will confirm the registration and receive a protocol of receipt of his/her application.

3.3. Once the documentation is received and the conditions of the public hiring process are met, the Unit Secretariat will forward the application for registration with all the documentation to the Director of the School of Chemical Engineering, who will submit it to the Department or to another competent body, defined by the Congregation of the Unit to which the area(s) in question is affected, which has a period of 15 days to issue a detailed opinion on the matter.

3.3.1. The opinion referred to in the previous sub-item will be submitted to the approval of the Congregation of the Unit, which will deliberate on the approval of registrations.

3.3.2. The Unit will publish on the site [www.feq.unicamp.br/](http://www.feq.unicamp.br/) the decision of the Congregation regarding the inscriptions and composition of the Judging Commission.

3.4. Candidates who had their applications deferred will be notified regarding the composition of the Judging Committee and its substitutes, as well as the schedule set for the tests and the place where they will be held, through a public notice to be published in the Official Gazette of the State and published on the site [www.sg.unicamp.br/concursos](http://www.sg.unicamp.br/concursos), at least 20 (twenty) working days before the beginning of the tests.

3.5. The registration period may be extended, at the discretion of the Unit, for the same period, and it must be published in the Official State Gazette by the closing date for registration.

3.6. At the discretion of the Unit, the registration period may be reopened, for the same period, until the end of the business day immediately following the registration closing date.

#### **4. JUDGING COMMITTEE**

4.1. The Judging Committee will be made up of 05 (five) full members and 02 (two) surrogates, who holds, at least, a PhD Title, whose names will be approved by the Congregation of the Unit, and its composition must observe the constitutional principles, in particular the one of impersonality.

4.1.1. At least 02 (two) members of the Judging Committee must be external to the Unit or belong to other institutions.

4.2. It will be up to the Judging Committee to examine the documents presented, conduct the tests and make arguments in order to substantiate a detailed opinion, classifying the candidates.

4.3. The Judging Committee will be chaired by the member of the Unit with the highest title. In the event that more than one member is in this situation, the presidency will fall to the oldest professor.

#### **5. TESTS**

5.1. The admission process will consist of the following tests

- a) written test (weight 01);
- b) specific test (weight 01);
- c) proof of titles (weight 01);
- d) argumentation test (weight 01);
- e) didactic test (weight 01);

5.2. When defining the times for the tests, the official time in Brasilia/DF will be considered.

5.2.1. The candidate must attend the place designated for the performance of the tests at least 30 (thirty) minutes before the time set for the start of the test.

5.2.2. Candidates will not be admitted to the test venue after the scheduled start time.

5.3. Non-attendance to the tests, for whatever reason, will characterize the withdrawal of the candidate and will result in his/her elimination from the admission process.

5.4. If there are tests of an eliminatory nature, these must take place at the beginning of the admission process and their results published before the sequence of the other tests.

5.4.1. Only candidates who pass the qualifying tests will participate in the other tests.

##### **Written test**

5.5. The written test will deal with a general and doctrinal subject, related to the content of the program of disciplines or set of disciplines related in this admission process.

5.5.1. At the beginning of the written test, the Judging Committee will read the question(s), granting a period of 60 (sixty) minutes for candidates to consult their books, journals or

other bibliographic documents, in printed form, excluding access to electronic equipment and the internet.

5.5.2. After the period established in item 5.5.1, consultation of any material will no longer be allowed, and the written test will begin, lasting 04 (four) hours for writing the answer(s).

5.5.3. The notes taken during the consultation period provided for in item 5.5.1 may be used during the written test and must be branded by all members of the Judging Committee and attached to the answer sheet.

5.5.4. The written test will deal with the content of the program of the disciplines related in this admission process.

5.5.5. Each examiner will assign a grade from 0 (zero) to 10 (ten) to the written test.

### **Specific Test**

5.6. The specific test will consist of the analysis of the Work Plan document (presented by the candidate at the time of registration) and its public defense. The public defense will consist of evaluation, through presentation and oral arguments, of the Work Plan (item 3.2.e). The Judging Committee will assess the candidate's mastery of knowledge and aptitude in the area of the contest, based on the following aspects:

- a) pertinence and adequacy of the content to be addressed in undergraduate and graduate education;
- b) pertinence and relevance of the research project;
- c) originality and feasibility of the presented research proposal, considering its adherence to the research area in Science and Sustainable Processes;
- d) pertinence and relevance of extension activities and their adherence to the other academic activities of the School of Chemical Engineering.

The candidate will have a maximum of 20 (twenty) minutes for oral presentation of his Work Plan and will be questioned for up to 40 (forty) minutes.

5.6.1. Each examiner will assign a score from 0 (zero) to 10 (ten) to the specific test.

### **Titles Test**

5.7. In the title test, the Judging Committee will assess the report prepared and proven by the candidate at the time of registration.

5.7.1. For the purpose of judging the proof of titles, the following documents will be considered:

- a) Graduation Title;
- b) Title of Specialization;
- c) Master's degree;

- d) Title of Doctorate;
- e) Title of Professional Master;
- f) Post-Doctorate;
- g) Academic-scientific publications (articles in indexed national and/or international journals, books, book chapters);
- h) Professional experience in academic and non-academic sectors;
- i) Participation in extension activities;
- j) Academic activities during graduation (scientific initiation, monitoring, internship);
- k) Receipt of scholarship or support for research;
- l) Participation or coordination in a research project (with financial resources);
- m) Awards and academic distinction;
- n) Advising, consultancy and editorial work;
- o) Patents, software and other registered intellectual property.

5.7.2. The Judging Committee will adopt the following criteria for judging the title test, considering the quality and interest of the candidate's production:

- a) Suitability of their basic scientific training to the area(s) of the competition and subject(s);
- b) Solidity of their basic scientific training regarding the area(s) of the competition and subject(s);
- c) Relevance of previous teaching experience;
- d) Quality of scientific production and ability to disseminate knowledge;
- e) Ability to lead research and work collaboratively;
- f) Quality and relevance of experience in training human resources for the scientific area;
- g) Distinction in scientific and teaching activities;
- h) Relevance of experience for academic management;
- i) Relevance of non-academic professional experience for teaching, research, extension and university management activities;
- j) Quality, quantity and relevance of international experience;
- k) Ability to raise financial resources for investment in teaching and research.

5.7.3. The members of the Judging Committee will have a maximum period of 24 (twenty-four) hours to issue a judgment on the title test.

5.7.4. Each examiner will assign a score from 0 (zero) to 10 (ten) to the title test, preparing a detailed opinion that indicates the judgment criteria and the score assigned to each candidate.

### **Argumentation Test**

5.8. In the questioning test, the candidate will be questioned by the Judging Committee on the subject of the program of the discipline or set of disciplines in competition and/or on the report presented in the application.

5.8.1. In the argumentation test, each member of the Judging Committee will have up to 30 (thirty) minutes to argue the candidate who will have equal time to answer the questions asked.

5.8.2. If there is mutual agreement, the questioning may be made in the form of dialogue, respecting, however, the maximum limit of 01 (one) hour for each candidate.

5.8.3. At the end of the test, each examiner will award the candidate a score from 0 (zero) to 10 (ten).

### **Didactic Test**

5.9. The didactic test will deal with the discipline program or set of disciplines in competition (Annex I) and in it the candidate must reveal in-depth knowledge in the subject.

5.9.1. The subject for the didactic test will be drawn 24 (twenty-four) hours in advance, from a list of 10 (ten) points, organized by the Judging Committee.

5.9.2. The didactic test will last from 50 (fifty) to 60 (sixty) minutes, and in it the candidate will develop the subject of the drawn point, prohibited the simple reading of the text of the class, but allowing, with prior approval of the Judging Committee, the use of scripts, notes, tables, graphs, devices or other pedagogical resources usable in the exhibition.

5.9.3. At the end of the test, each examiner will award the candidate a score from 0 (zero) to 10 (ten).

5.10. The oral tests of this public tender will be held in a public session. Candidates are prohibited from attending the tests of other candidates.

5.11. The Judging Committee may or may not deduct points when the candidate does not reach the minimum time or exceeds the predetermined maximum time for the didactic and argumentation tests.

## **6. EVALUATION AND JUDGMENT OF TESTS**

6.1. The proof of titles, argumentation, didactic, written and specific tests will rank the candidates.

6.1.1. The written test will be eliminatory if 05 (five) or more candidates attend to the public hiring process.

6.1.1.1. In the event that the written test has an eliminatory nature, the following procedure must be observed:

- a) at the end of the written test, each examiner will award the candidate a score from 0 (zero) to 10 (ten), considering the provisions of item 5.5 of this notice;
- b) after assigning the grades, the result of the written test will be immediately proclaimed by the Judging Committee in a public session;
- c) Candidates who obtain scores equal to or greater than 07 (seven) from at least 03 (three) of the 05 (five) examiners will be considered approved;
- d) only candidates approved in the written test will participate in the other tests of the public hiring process;
- e) the marks assigned in the written test by each of the examiners to the approved candidates will be computed at the end of the public tender for classification purposes, under the terms of item 6.3 of this announcement.

6.2. At the end of each of the tests provided for in sub-item 5.1 of this notice, each examiner will award the candidate a score from 0 (zero) to 10 (ten).

6.2.1. The marks for each test will be assigned individually by the members of the Judging Committee in a sealed and marked envelope, after each test has been completed and opened at the end of all the competition tests in a public session.

6.2.2. If the written test is not eliminatory, the grades awarded in this test must be disclosed at the end of the competition, under the terms of sub-item 6.2.1.

6.3. The final grade of each examiner will be the weighted average of the grades assigned by him to the candidate in each test.

6.3.1. Each examiner will list candidates in descending order by final grades. The examiner himself will decide cases of tie, with criteria he deems relevant.

6.3.2. The final grades will be calculated to the hundredths, disregarding the number of hundredths, if less than five and increasing the digit of the decimal place to the subsequent number, if the number of hundredths is equal to or greater than five .

6.4. The Judging Committee, in a reserved session, after publishing the grades and calculating the results, will issue a detailed opinion on the result of the competition justifying the indication made, which must include a table and/or texts containing the grades, averages and classification of the candidates. The judgment criteria adopted for evaluating each of the tests must also be included in the report. All documents and notes made by the Judging Committee for awarding the grades must be attached to the public tender process.

6.4.1. Individual reports of its members may be added to the Judging Commission's report.

6.5. The result of the contest will be immediately proclaimed by the Judging Committee in a public session.

6.5.1. Candidates who obtain, from the majority of examiners, a minimum final grade of



seven will be considered qualified.

6.5.2. The list of qualified candidates is made from the ordered lists of each examiner.

6.5.3. First place will be the candidate who obtains the highest number of nominations in first place in the ranked list of each examiner.

6.5.4. The tie in the nominations will be decided by the Judging Committee, successively prevailing the highest average obtained in the didactic test and the highest average obtained in the title test. If the tie persists, the decision will be made by vote of the Judging Committee. The President shall have a tie-breaking vote, if applicable.

6.5.5. By excluding the name of the previously selected candidate from the examiners' lists, the next ranked candidate will be the candidate who obtains the highest number of indications in the highest position of each examiner's ordered list.

6.5.6. Identical procedure will be carried out subsequently until the classification of the last qualified candidate.

6.6. The sessions referred to in items 6.2.1 and 6.5 must be held on the same day at previously announced times.

6.7. The opinion of the Judging Committee will be submitted to the Congregation of the School of Chemical Engineering, which can only reject it due to formal defects, by the vote of 2/3 (two thirds) of its members present.

6.8. The final result of the competition will be submitted to the Internal Chamber of Teacher Development (CIDD) for consideration, and forwarded to the Chamber of Teaching, Research and Extension (CEPE) for deliberation.

6.9. The list of approved candidates will be published in the State Official Gazette, with the respective rankings.

## **7. ELIMINATION**

7.1. Candidates who:

- a) Fail to respond to the summons of the Judging Committee;
- b) Fail to attend the draw for the point of the didactic test;
- c) Fail to attend any of the tests, except for the title test.

## **8. APPEALING**

8.1. Candidates may lodge an appeal of nullity against the result of the public hiring process, with the University Council, within 05 (five) working days, counting from the publication provided for in item 6.9 of this notice.

8.1.1. The appeal must be filed at the General Secretariat of UNICAMP.

8.1.2. Appeals received via postal, facsimile or e-mail will not be accepted.

8.1.3. Extemporaneous appeals will not be accepted.

8.2. The result of the appeal will be published on the website of the General Secretariat of UNICAMP ([www.sg.unicamp.br](http://www.sg.unicamp.br)).

## **9. FINAL REMARKS**

9.1. The candidate's registration will imply knowledge and tacit acceptance of the norms and conditions established in this notice, in relation to which the candidate cannot claim any kind of lack of knowledge.

9.2. Calls, notices and results of the competition will be published in the State Official Gazette and will be available on the website [www.feq.unicamp.br/](http://www.feq.unicamp.br/), being the sole responsibility of the candidate to monitor them.

9.3. If the appeal deadlines end on a day when the University is closed, on a Saturday, Sunday or a holiday, these will be automatically extended until the first subsequent working day.

9.4. The period of validity of the admission process will be of 02 (two) year(s), counting from the date of publication in the Official Gazette of the State of the homologation of the results by CEPE, which may be extended once, for the same period.

9.4.1. During the period of validity of the competition, positions that become vacant may be filled, for the use of candidates approved in the discipline or set of disciplines in competition.

9.5. At the discretion of the Teaching and Research Unit, the approved and admitted candidate may be assigned other disciplines in addition to those referred to in the admission process area, provided they refer to the contest area or their area of expertise.

9.6. The approved and admitted candidate will only be considered stable after completing the probationary period, referring to a period of 03 (three) years of effective exercise, during which he will be submitted to the special performance evaluation, according to the regulations provided by the University.

9.7. Up to 60 (sixty) days after the publication of the approval of the competition, the candidate may request the withdrawal of the memorials (item 3.2 "c" and "d") delivered at the time of registration and that were not used by the Judging Committee, upon request filed in the Secretariat of the School of Chemical Engineering. After this period, if not withdrawn, the memorials will be discarded.

9.8. This public hiring process will comply with the provisions contained in Deliberation CONSU-A- 30/13, and Internal Ordinance FEQ 01/2015 that establishes the requirements for holding such processes.

9.8.1. A copy of Resolution CONSU-A-30/13 may be obtained at [www.sg.unicamp.br](http://www.sg.unicamp.br) or at the Secretariat, Faculty of Chemical Engineering, which may provide any other information

related to the public tender (available only in Portuguese).

9.9. The items in this public notice may undergo eventual alterations, updates or additions while the measure or event concerning them is not consummated, until the date of call for the corresponding test, a circumstance that will be mentioned in the Public Notice to be published.

9.10. Any change in the rules for the execution of the competition must be subject to a new public notice.

### **Annex I - Subject Programs**

<b>EQ251 - Process Design 2</b>
Syllabus: Design and dimensioning of separation and thermal exchange systems.
Learning Objectives: At the end of the course, the student should be able to: i) Dimension separation equipment and heat generation and transfer systems
Pedagogical proposal: This curricular component should be understood as a continuation of the EQ250 course, in which a chemical and/or biotechnological process was proposed. The design of this process should be the main line of the three disciplines of this competence, but it does not limit learning experiences aimed at the study of other equipment and processes. Having established the preliminary calculations of a conceptual design of processes and already having the dimensioning of the chemical reactor, following the approach "from the center to the outside", in this curricular component will be studied and detailed systems of separation of components in chemical and biochemical processes. A separation step characteristic of the proposed project will then be analyzed and dimensioned. In a second stage, ways of satisfying the energy balance of process streams and reaction and separation operations will be studied, through energy integration and use of utilities, and choice and sizing of suitable equipment. This curricular component must be integrated with EQ260 and EQ271, allowing control strategies to be proposed and process optimization to be implemented in the appropriate software.
Contents:  1. Sizing and operation of separation equipment (Suggested time: 40 hours) Each topic below should be addressed, if relevant: <ul style="list-style-type: none"><li>● fundamentals of operation (driving force),</li><li>● basic configuration (single stage, multiple stages: mixer/separator columns or sequences and packing columns)</li><li>● design methods (McCabe-Thiele, Fenske-Underwood-Gilliland, Kremser eq., graphical method for LL extraction)</li><li>● modeling, "rigorous" simulation (MESH equations), analysis of composition and temperature profiles, and design</li></ul> 1.1 Flash and distillation: sizing, selection, and performance criteria: distillation of (quasi-) ideal systems, azeotrope separation (extractive, azeotropic, double pressure), separation

systems

1.2 Liquid-liquid extraction and absorption: sizing, selection, and performance criteria: solvent choice, chemical absorption

1.3 Solid-fluid separation unit operations (adsorption, leaching, drying, and crystallization): design, selection, and performance criteria

2. Sizing of heat transfer systems in processes and generation of utilities (Suggested time: 20 hours)

2.1 Unit Operations for the generation of hot utilities: selection and performance criteria

2.2 Unit Operations for the generation of cold utilities: selection and performance criteria

2.3 Rational consumption of utilities: aspects of energy integration

2.4 Heating and cooling of currents with and/or without phase change: sizing and operation of equipment, considering corrosion protection strategies and operating conditions

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- Towler, G. Sinnott, R. "Chemical Engineering Design", 2nd edition, 2012
- Seader, J.D. e Henley, E.J.; "Separation Process Principles", 2ª. edição, Wiley, 2005.

## **EQ280 - Engineering and Sustainability 1**

Syllabus: Environmental engineering concepts and tools

Learning Objectives:

At the end of the course, the student should be able to:

- Identify the phenomena of pollution and its effects on the alteration of the physical environment, both by dispersion and by chemical and biochemical interactions;
- Analyze production processes, identify sources of generation and emissions of pollutants, and quantify them;
- Quantify changes in physical environments as a result of generations and emissions of pollutants;
- Analyze and select more efficient environmental control technologies, more suited to local legal requirements and with the best sustainability indicators
- Select technologies or solutions with the least generation of residues and tailings, the lower generations and emissions of pollutants, and less consumption of natural resources.

Pedagogical proposal:

This curricular component will address topics related to sustainability, atmospheric, water, and soil pollution, the management of emissions, effluents, and residues, their treatment, and final disposal. This component is integrated with the curricular components of EQ240, EQ241, and EQ242, in addition, to process risk analysis contents.

Contents:

- Concepts of sustainability, pollution, and pollutants (Suggested time: 4 hours)
  - sustainability concept

- 1.2. Water pollution
- 1.3. Air pollution
- 1.4. Ground pollution

2. Sources of generation and emissions of pollutants (Suggested time: 4 hours)

3. Generation and emissions inventory (Suggested time: 8 hours)

- 3.1. Relevance of the generation and emissions inventory
- 3.2. Quantification methods

4. Changes in physical means (Suggested time: 8 hours)

- 4.1. Estimation and prediction methods
- 4.2. Reference and legal limits

5. Waste and tailings (Suggested time: 12 hours)

- 5.1. Waste and tailings concepts
- 5.2. Waste classification
- 5.3. Waste Management

6. Environmental Control Technologies (Suggested time: 12 hours)

- 6.1. Atmospheric emission control technologies
- 6.2. Liquid effluent treatment technologies
- 6.3. Tailings treatment and final disposal technology
- 6.4. Remediation of contaminated areas

7. Sustainable practices (Suggested time: 12 hours)

- 7.1. Concepts of sustainable practices
- 7.2. Case studies

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- Solid waste management / by D. J. Hagerty, Joseph L. Pavoni and John E. Heer, Jr. - BAE - 628.445/H122s
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