

Field name	Description
University	„Constantin Brâncuși” University of Târgu-Jiu
Faculty	Faculty of Engineering
Department	Industrial and Automatic Engineering
Position in the list	13
Rank	Associate professor
Discipline din planul de învățământ	Mechanisms I Mechanisms II Mechanisms and elements of precision mechanics Machine Elements II-Project
Scientific field	Industrial Engineering
The description of the academic position	Associate Professor position 11 – Department of Industrial and Automation Engineering/Faculty of Engineering - associate professor position, including teaching activities in the subjects from the position put out to competition that are found in the curricula of the bachelor's and master's degree programs within the faculty. Also, the position includes, in addition to teaching activities, evaluation, consultation and tutoring activities in the subjects from the curriculum included in the position put out to competition and tutoring activities. The position is put out to competition for an indefinite period
Academic duties	Weekly teaching activity consisting of: -2 hours of lecture, 1 hour of laboratory and 1 hour of seminar in the discipline Mechanisms I ; -2 hours of lecture and 1 hour of project in the discipline Mechanisms II ; -2 hours of lecture, 1 hour of laboratory and 1 hour of project in the discipline Mechanisms and elements of precision mechanics ; -2 hours of project in the discipline Machine Elements II-Project -2 hours of project in the discipline Machine parts II - project -2 hours of consultation activities; 2 hours of evaluation activities; 2 hours of tutoring activities The position also includes scientific research activities in the field, according to the National Education Law no. 199/2023, with subsequent amendments and completions, and the job description, which will be drawn up as an annex to the employment contract.
Employment salary	10103 lei
Publication date on site UCB	April 10 th 2025
Starting and final dates of the registration	April 10 th 2025- August 28 th 2025
Date, day of the week and hour for the promotion exam	September 19 th 2025, Friday, hour 13.00
Venue where the promotion exam	Faculty of Engineering, Room 113, Calea Eroilor, no. 30, code 210135, Gorj
The dates for the competition tests, including lectures, courses, etc.	September 19 th 2025
Date of exam results communication	September 19 th 2025
Starting and final dates for contesting the results	September 22 th 2025- September 24 th 2025

Topics for preparing the promotion exam

For candidates from higher education, the fulfillment of the minimum national standards for occupying the position of associate professor is verified in accordance with Law no. 199/2023, the Higher Education Law, with subsequent amendments and completions, with Order MENCȘ no. 6129/20.12.2016, with the Competition Methodology for occupying vacant teaching and research positions at the "Constantin Brâncuși" University of Târgu-Jiu

Candidates from outside the higher education system additionally give a public lecture of a didactic or scientific research nature, with the following topic:

I. Discipline: Mechanisms I

Themes:

1. Introduction – general notions of mechanisms

2. Structural analysis of mechanisms

Kinematic couples. Classification. Kinematic chains. Degree of mobility of the mechanism. Structural groups

3. Kinematics of mechanisms

Positional analysis. Determination of speeds and accelerations. Analytical method

4. Kinetostatics of mechanisms

Forces in the mechanism. Calculation of frictionless reactions. Calculation of frictional reactions

5. Dynamic analysis of mechanisms

The phases of movement of a mechanism. Mechanical efficiency. Types of forces acting on mechanisms. Determination of inertia forces by mass concentration. Balancing of mechanisms. Equations of motion of mechanisms

Bibliography:

1. Antonescu P., Mecanisme, Editura Printech, București, 2003.

2. Pelecudi Chr., Maros D., Merticaru V., Pandrea N., Simionescu I., Mecanisme, Editura Didactică și Pedagogică, București, 1985

3. Crețu S.M., Mecanisme, Analiză structurală, Teorie și aplicații, Editura SITECH, Craiova, ISBN 978-606-11-0760-5, 2010.

4. Handra-Luca, V., Stoica, I. A., Introducere în teoria mecanismelor, vol.1, Editura Dacia, Cluj-Napoca, 1982

5. Handra-Luca V., Stoica I. A., Introducere în teoria mecanismelor, vol.2, Editura Dacia, Cluj-Napoca, 1983

6. Popescu, Gh., Mecanisme, Editura Spicon, Târgu Jiu, 1994.

7. Popescu Gh., Mecanisme, Lucrari de laborator, Reprografia Univ. Constantin Brâncuși, Tg-Jiu, 1997.

8. Popescu I., Noi Mecanisme Generatoare de Curbe, Editura SITECH, Craiova, ISBN 9786061141258, 2014.

9. Crețu S.M., Mecanisme cu Bare. Analiză Structurală, Cinematică și Cinetostatică - Teorie și aplicații, Editura SITECH, Craiova, ISBN 978-606-11-4313-9, 2015

10. Tarniță D., Grigorie L., Malciu R., Mecanisme plane cu bare. Teorie și aplicații, Editura Universitaria, Craiova, ISBN 978-606-14-1435-2, 2018

II. Discipline: Mechanisms II

Themes:

1. Cam mechanisms.

Classification. Geometric elements of cams. Analysis of the cam-tackle mechanism. Transmission of forces in the translational cam-tackle mechanism

2. Synthesis of cam mechanisms.

Laws of motion of the cam-tackle mechanism. Determination of the radius of the base circle of the cam

3. Mechanisms with gear elements of cylindrical type with straight and inclined teeth and of conical type

The degree of mobility of the mechanism. Geometric elements of cylindrical gears with straight teeth. Geometric elements of cylindrical gears with inclined teeth. Geometric elements of bevel gears. Transmission ratio. Reference rack

4. Kinematics of simple gears

5. Gear train. Planetary units with bevel gears - car differential.

5. Universal joint mechanism

Bibliography:

1. Popescu I., Proiectarea mecanismelor plane, Editura Scrisul românesc, Craiova, 1977.

2. Handra-Luca V., Stoica I., Introducere în teoria mecanismelor, vol.2, Editura Dacia, Cluj Napoca, 303p., 1983.

3. Popescu Gh., Mecanisme, Editura Spicon, Târgu Jiu, 1994.

4. Pelecudi Chr., Maros D., Merticar V., Pandrea N., Simionescu I., Mecanisme, Editura Didactică și Pedagogică, București, 1985

5. Crețu S.M., Mecanisme-Analiză structurală, teorie și aplicații, Editura Sitech, Craiova, ISBN 978-606- 11-0760-5, 2010

6. Dudiță F., Diaconescu D., Optimizarea structurală a mecanismelor, Editura Tehnică, 1987

7. Gafițanu, M., și al., Organe de mașini, Vol. 1, Ed. Tehnică, București, 1981.

8. Gafițanu, M., și al., Organe de mașini, Vol. 2, Ed. Tehnică, București, 1983.

9. Dăscălescu A., Tisan V., Îndrumător pentru lucrări de laborator la mecanisme - vol II - dinamica mecanismelor, mecanisme cu came și cu roți dințate, Editura Risoprint Cluj-Napoca, ISBN 978-973-53-0504-8, 94p., 2011

10. Antonescu P., Mecanisme, Editura Printech, București, 2003.

11. Alaci S., Mecanisme cu came, ISBN 978-606-25-0227-0 Editura MatrixRom București, 2016

III. Discipline: Mechanisms and elements of precision mechanics

Themes:

1. Introduction to the history of mechanisms

2. Mechanism structure.

Kinematic couplings. Kinematic chains. Mechanism family. Degree of mobility of the mechanism.

3. Mechanism kinematics

Kinematics of plane mechanisms with bars
 Positional analysis. Determination of speeds and accelerations. Analytical method
 4. Kinetostatics of mechanisms.
 Determination of reactions in plane mechanism couplings
 4. Machine dynamics.
 Movement phases of a mechanism. Reduced forces and moments
 5. Cam mechanisms.
 Classification. Geometric elements of cams. Analysis of the cam-tackle mechanism.
 6. Spring mechanisms used in fine mechanics
 Coil springs. Leaf springs.
 7. Fine mechanics mechanisms with toothed elements of the cylindrical type with straight and inclined teeth and of the conical type.
 Geometric elements of spur and helical gears. Transmission ratio. Reference rack
 8. Study of structural elements in fine mechanics for guiding rotational motion (axles and shafts)
 Structural elements of shafts. Dimensioning of shafts.
 Checking of shafts

Bibliography

1. Handra-Luca, V., Stoica, I. A. Introducere în teoria mecanismelor, Editura Dacia, Cluj Napoca, 1982.
2. Popescu, Gh. Mecanisme, Editura Spicon, Târgu Jiu, 1994.
3. Pelecudi, Chr., Maros, D., Merticar, V., Pandrea, N., Simionescu, I., Mecanisme, Editura Didactică și Pedagogică, București, 1985
4. Tarniță, D., Bolcu, D. Metode de analiză cinematică a mecanismelor plane, Editura Didactică și Pedagogică, București, 2005
5. Crețu, S.M., Mecanisme-Analiză structurală, teorie și aplicații, Editura Sitech, Craiova, ISBN 978-606-11-0760-5, 2010
6. Crețu, S.M., Mecanisme cu roți dințate. Teorie și aplicații, Sitech, 2018, 978-606-11-6805-7
7. Crețu, S.M., Mecanisme cu came. Teorie și aplicații, Sitech, 2021
8. Alaci S., Mecanisme cu came, ISBN 978-606-25-0227-0 Editura MatrixRom București, 2016
9. Demian, T., Tudor D., Curita I., Nițu C., Bazele proiectării aparatelor de mecanică fină, vol 2, Editura Tehnica, București, 1986.
10. Demian, T., Elemente constructive de mecanică fină, Editura Didactică și Pedagogică, București, 1980.
11. Demian, T., Tudor D., Grecu E., Mecanisme de mecanică fină, Editura Didactică și Pedagogică, București, 1982
12. Dăscălescu, A., Tisan, V. Îndrumător pentru lucrări de laborator la Mecanisme vol 2 -Dinamica mecanismelor, mecanisme cu came și cu roți dințate, Editura RISOPRINT, Cluj-Napoca, 2011

	13. Rusu C., Mecanisme, Editura U.T.PRESS, Cluj-Napoca, ISBN 978-606-737-501-5, 2021 IV. Machine Elements II- Project Themes: 1. General notions of machine parts design 2. Design of a mechanical transmission (specified in the design topic). Calculation of transmission ratios, speeds and powers within the transmission. 3. Selection of materials for the related gears Sizing and checking of gears. Calculation of forces in gears. 4. Selection of lubricant. 5. Sizing of shafts within the mechanical transmission. Checking of shafts. 6. Selection of bearings, types of bearing mounting, checking of bearings. 7. Calculation of the coupling 8. Calculation of the transmission with flexible element 9. Execution of part drawings and assembly drawing Bibliography: 1. Ghimiș Ș., Organe de mașini. Transmisii mecanice, Editura Academica Brâncuși, Târgu Jiu, 2008 2. Crețu, S.M., Mecanisme cu roți dințate. Teorie și aplicații, Sitech, 2018, 978-606-11-6805-7 3. Pop D., Haragaș S., Buiga O., Organe de mașini, Editura Risoprint, vol.2., 2021 4. Gafițanu, M., și al., Organe de mașini, Vol. 1, Ed. Tehnică, București, 1981. 5. Gafițanu, M., și al., Organe de mașini, Vol. 2, Ed. Tehnică, București, 1983. 6. Jula A., Chișu E., M. Lateș, Transmisii mecanice, Editura Universitatea Transilvania Brasov, 2006 7. Belcin O., Bîrleanu C., Pustan M., Organe de Mașini. Elemente constructive în proiectare, Editura Risoprint, ClujNapoca, 2011.
Description of the competition procedure	The competition is conducted in accordance with the Framework Methodology for the competition for filling vacant teaching and research positions in higher education, approved by Government Decree no. 1339/2023, with subsequent amendments and supplements, Higher Education Law no. 199/2023, with subsequent amendments and additions and the Competition Methodology for filling vacant teaching and research positions at the "Constantin Brâncuși" University of Târgu-Jiu, approved at the meeting of the Senate of the "Constantin Brâncuși" University of Târgu-Jiu on 13.03.2024. The competition file created by the candidate, together with the electronic support, which contains the scanned file, is submitted with a registration number to the address of the higher education institution specified on the competition website, directly or through postal or courier services that allow confirmation of receipt. The competition file is sent to the members of the competition committee starting from the closing date of the competition file submission process, but no later than 5 working days before the first test of the competition. The

file, in the electronic format submitted by the candidates, is sent by the dean of each faculty that manages the competitions. The file in printed format, submitted by the candidate, will be sent to the chairman of the committee. The competition committee evaluates the candidate from the perspective of meeting the minimum standards specific to the position as well as verifying the following aspects: the relevance and impact of the candidate's scientific results, in relation to the field of disciplines of the position for which he/she is applying; the candidate's ability to guide students or young researchers; the candidate's teaching skills; the candidate's ability to transfer his/her knowledge and results to the economic or social environment or to popularize his/her own scientific results; the candidate's ability to work in a team and the efficiency of his/her scientific collaborations, depending on the specifics of the candidate's field; the candidate's ability to lead research and development projects; the candidate's professional experience in institutions other than the institution organizing the competition; the proposal for developing the teaching and research career. In order to occupy the position of associate professor, the following conditions must be met cumulatively: possession of a doctorate; meeting the minimum national standards for occupying teaching positions, specific to the teaching position of associate professor, approved by Order of the Minister of Education, according to art. 156 paragraph (1) of Law no. 199/2023 - Higher Education Law, as subsequently amended and supplemented; other specific criteria established by the Faculty Council, criteria that cannot fall below the level of national standards approved by Order of the Minister of Education, according to art. 156 paragraph (1) of Law no. 199/2023 - Higher Education Law, as subsequently amended and supplemented. In case of equal scores, the committee will take into account for the tie-breaking, in order, the following criteria:

- Proposal for the development of the teaching and research career;
- the candidate's contributions to increasing the prestige of UCB;
- the candidate's contributions to the institutional development of UCB.

The competition committee decides the ranking of the candidates and nominates the candidate who has achieved the best results. The chairman of the competition committee draws up a report on the competition, based on the evaluation reports written by each member of the competition committee and respecting the hierarchy of candidates decided by the committee. The report on the competition is signed by each member of the competition committee and by the chairman of the committee. The chairman of the competition committee submits the competition report approved by the committee's decision, the evaluation reports and the original file submitted by the candidate to the Dean of the Faculty. The report of the

	competition committee, after its validation by the faculty council, is submitted by the dean of the faculty to the senate of the higher education institution, for approval. The Legal Department gives its opinion on the legality of the competition. The university senate analyzes compliance with the procedures established by the higher education institution's own methodology and approves or not the report on the competition. The hierarchy of candidates established by the competition committee cannot be modified by the university senate. Appeals may be filed by a candidate for failure to comply with the standards, respectively the organization and conduct of the competition. The candidate may file an appeal within 3 working days from the communication of the result by the competition committee. The appeal is formulated in writing, registered at the UCB registry and resolved by the appeals committee within 48 hours of its registration, before the publication of the competition results. The contest can be submitted online to rectoratucb@gmail.com. The result of the contest is published on the contest website, within 2 working days from the end of the contest. The result of the contest is also uploaded on the electronic platform managed by the Ministry of Education.
List of documents	A1. Application for registration for the competition, signed by the candidate, which includes a declaration on his/her own responsibility regarding the veracity of the information presented in the file; A2. Proposal for the development of the candidate's career both from a teaching point of view and from a scientific research point of view; the proposal is written by the candidate, and comprises a maximum of 10 pages; A3. Curriculum vitae of the candidate – Europass model (in original, signed by the candidate on each page), which must include: information about the studies completed and the diplomas obtained; professional experience and relevant jobs; information about the research and development projects and grants that he/she has led as a project director or as a member, indicating for each funding source, the amount of funding and the main publications or patents resulting; information about awards or other elements of recognition of the candidate's scientific contributions; other relevant information; A4. The candidate's list of works in printed format (in original, signed on each page) which will be structured as follows: a list of a maximum of 10 works considered by the candidate to be the most relevant to his/her professional achievements, which are also included in electronic format in the file and which can also be found in the other categories of works provided for in this article; doctoral thesis or theses; books and chapters in books; articles/studies, published in journals from the main international scientific flow; full-text publications, appearing in proceedings of the main international specialized conferences; research-development-innovation

projects based on contract / grant that he/she led as project director or in which he/she worked as a member, indicating the source of funding for each; patents and other industrial property titles; other scientific works and contributions.

A5. Verification sheet of the fulfillment of the standards specific to the position, completed and signed by the candidate in printed format (in original, signed on each page).

A6. Documents relating to the possession of the doctoral degree. A true copy of the doctoral degree and, if the original doctoral degree is not recognized in Romania, a true copy of the certificate of its recognition or equivalence.

A7. Summary of the doctoral thesis in Romanian and in an internationally spoken language (maximum one page for each language);

A8. Other diplomas attesting the candidate's studies: copies of other diplomas attesting the candidate's studies: (baccalaureate diploma, bachelor's degree, master's degree/advanced studies, Certificate attesting psychopedagogical training) or, if the original diplomas are not recognized in Romania, their certificates of recognition or equivalence; copies of other diplomas attesting the candidate's studies. The copies are signed by the candidate for certification "consistent with the original";

A9. Transcripts, diploma supplements or school reports issued for each cycle of studies;

A10. Copy of the identity card certified by the candidate "according to the original" or, as the case may be, of the passport or another identity document drawn up for a purpose equivalent to the identity card or passport;

A11. Copies certified by the candidates "according to the original" of the documents attesting to the change of name, if applicable (marriage certificate or proof of name change);

A12. Declaration on the candidate's own responsibility that he/she is not in any situation of incompatibility provided for in Law no. 199/2023 - Higher Education Law, with subsequent amendments and completions and the Framework Methodology issued at national level;

A13. Criminal record certificate;

A14. Certificate of behavioral integrity;

A15. Medical certificate proving that he/she is fit to carry out teaching activities, issued on a specific form adopted by joint order of the Minister of Education and the Minister of Health;

A16. Medical certificate for the exercise of the teaching profession, issued in accordance with the provisions of the joint order of the Minister of Education and the Minister of Health;

A17. Letters of recommendation, in accordance with art. 13 of GD 1339/2023: for the position of university lecturer, three letters of recommendation from personalities in the respective field, from the country or abroad, external to the higher education institution whose position is being

	advertised, who have agreed to draw up letters of recommendation regarding the candidate's professional qualities. A18.- A19. Declaration of assumption of responsibility, in original (holograph) signed by the candidate. The declaration must affirm the correctness of the data in the file and the fact that they refer to their own activities and achievements, otherwise the candidate will bear the consequences of false declarations, in accordance with the legislation. A20. A folder containing a maximum of ten of the candidate's most significant works, in scanned form on electronic media (CD/DVD/stick), and books and book chapters will be submitted in physical format. In addition, the electronic media will also include the candidate's list of works in Word format. A21. The document for payment of the competition registration fee. A22. Other documents according to the Competition Methodology for filling vacant teaching and research positions at the "Constantin Brâncuși" University of Târgu-Jiu. The file will include a cover page and a table of contents. A CD/DVD, or other electronic format, with its entire content scanned, including the folder with the 10 significant works, is also attached to the competition file for transmission to the competition committee.
Address where the competition file will be sent	"Constantin Brâncuși" University of Târgu-Jiu, Tineretului Street, no. 4, Târgu-Jiu, Gorj
Commission	
Methodology	Uploading doc, docx or PDF files. The maximum supported file size is 10MB.

Dean,
Prof. PhD.Chemistry, Popa Roxana - Gabriela

Department Director,
Assoc. prof. PhD. Mihuț Nicoleta - Maria