Field name	Description
University	**„Constantin Brâncuși" University of Târgu-Jiu**
Faculty	**Faculty of Engineering**
Department	**Industrial and Automatic Engineering**
Position in the list	**11**
Rank	**Associate professor**
Disciplines	**Cutting tool design** **Basics of Cutting and Surface Generation I** **Basics of Cutting and Surface Generation II** **Unconventional technologies**
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, one hour of laboratory and one hour of project in the discipline **Design of Cutting Tools**; 2 hours of lecture, in the discipline **Basics of Cutting and Surface Generation I**; 2 hours of lecture, 2 hours of laboratory in the discipline **Basics of Cutting and Surface Generation II**; 2 hours of lecture in the discipline **Unconventional Technologies**; 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 10th 2025**
Starting and final dates of the registration	**April 10th 2025- August 28th 2025**
Date, day of the week and hour for the promotion exam	**September 19th 2025, Friday, hour 9.00**
Venue where the promotion exam	**Faculty of Engineering, room 113, Calea Eroilor, no. 30, 210135 Târgu-Jiu, Gorj.**
The dates for the competition tests, including lectures, courses, etc.	**September 19th 2025**
Date of exam results communication	**September 19th 2025**
Starting and final dates for contesting the results	**September 22th 2025- September 24th 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: Cutting tool design** **Themes:** **1. General analytical model of cutting tools. Construction and calculation of the positioning-clamping part of cutting tools. Materials and semi-finished products for cutting tools.** **2. Knife design** Lathe knives. Simple lathe knives. Special lathe knives. Profiled knives. **3. Broaching design** Classification of broaches. Cutting patterns for broaching. Elements of broaches design and construction. **4. Tool design for bore machining** Drills. Constructive, geometric and design elements of drills. Drills for deep holes. Drills with a single cutting edge, without a cross cutting edge for deep holes. Drills without a cross cutting edge with d>20mm. Reamers. Broaches. **5. Milling cutter design** Milling and chip elements in milling with cylindrical cutters. Geometric parameters of cutters. Teeth shape. Constructive elements of cutters. Cutter constructions. **6. Threading tool design** Normal threading knives. Taps. Dies. Thread milling cutters. **7. Design of tools for gear cutting of cylindrical wheels** Disc module cutter. Finger module cutter. Comb knife. Worm module cutter. Wheel knife **8. Abrasive tools** Classification and general characteristics of abrasive tools. Abrasive materials. Binders for abrasive tools. Hardness of abrasive bodies. Structure of abrasive bodies. Abrasive capacity. Shape and dimensions of abrasive tools. **9. Combination tools** Classification of combined tools. Methods of combining cutting tools. Stages of designing combined tools. Constructive solutions of combined tools **10. Using tools on numerically controlled machine tools** Definition of the notion of « tool system ». Peculiarities of tools used on NC machine tools. Tool holders used on NC machine tools. Coding of cutting tools. Presetting of tools for NC machine tools. **Bibliography:** 1. Brîndaşu, P.D. ş.a., Bazele prelucrării suprafeţelor şi

	scule aşchietoare, Editura Universităţii „Lucian Blaga” din Sibiu, 2002; 2. Enache, Șt. ș.a., Teoria sculelor aşchietoare, vol I+II, Editura Tehnică, Bucureşti, 1987-1988; 3. Enache, Șt., Belous, V., Proiectarea sculelor aşchietoare, Editura Didactică şi Pedagogică, Bucureşti, 1983; 4. Minciu, C-tin. ş.a., Scule aşchietoare. Îndrumar de proiectare. Vol. 1+2, Editura Tehnică, Bucureşti, 1995 ; 5. Nioaţă, A., Proiectarea sculelor aşchietoare. Editura Academica Brâncuşi, Târgu-Jiu, 2010 ; 6. Nioaţă, A., Proiectarea sculelor aşchietoare. Îndrumar de laborator. Editura Academica Brâncuşi, Târgu-Jiu, 2009; 7. Popescu, I. ș.a., Scule aşchietoare. Elemente de proiectare, Editura MatrixRom, Bucureşti, 2001; 8. Popescu, I ș.a., Scule aşchietoare. Dispozitive de prindere a sculelor aşchietoare. Elemente pentru proiectarea tehnologiilor, Editura MatrixRom, Bucureşti, 2004. **II. Discipline: Basics of Cutting and Surface Generation I** **Themes:** **1. Concepts regarding surface generation by cutting** Surfaces of parts. Generalities regarding machining. Theoretical generation of surfaces. Generation of real surfaces on machine tools. Methods for obtaining generating curves. Methods for obtaining directing curves. **2. Kinematics of the cutting process** Movements required to generate surfaces on machine tools. Kinematic chains of machine tools. Adjusting machine tool kinematics **3. Cutting process and cutting tool parameters** Generalities. Parameters characterizing orthogonal cutting. Geometry of the elementary cutting tool. Constructive reference system. Constructive angles of the elementary tool. Materials for cutting tools. **4. The chip formation process** Generalities regarding the cutting process. Chip formation in orthogonal cutting. Shape and dimensions of the deformation zone. Models regarding chip formation. Importance of chip shape. Free cutting, complex cutting, chip flow direction. **5. Plastic deformations of the material and secondary plastic phenomena** Methods for assessing plastic deformations. Plastic deformation of the chip. Determination of the size of the conventional shearing angle. Influence of the parameters of the cutting process on the deformation of the chipped material. The phenomenon of deposits on the cutting edge. Flow layer. Stagnation layer. Hardened layer of the chipped surface (generated). 6. **Forces and cutting power** Generalities. Components of cutting force. Determination of the magnitude of the components of cutting force. Specific cutting force (specific pressure). Influence of the

	parameters of the cutting process on the specific force and components of cutting force. Calculation relations of the components Fc, Ff, Fp. Calculation of cutting power. Measurement of the components of cutting force. 7. **Heat and cutting temperature** Heat sources and heat balance during cutting. Influence of cutting process parameters on temperature. General calculation relation of tool temperature during cutting. Methods and means of measuring cutting temperature 8. **Cutting media** Functions and properties of cutting media. Structure of cutting fluids. Types of cutting fluids. Mode of action of cutting fluids. Choice of cutting fluids. Use of cutting fluids. 9. **Wear and durability of cutting tools** Forms of wear of cutting tools. Causes of wear of cutting tools. Tool durability. Criteria for assessing wear. Influence of cutting process parameters on wear and durability of cutting tools. Determination of durability of cutting tools. Increasing durability of cutting tools. 10. **Dynamics of the cutting process** Dynamic phenomena during cutting. Sources of vibrations in the cutting process. Ways to reduce and eliminate vibrations. 11. **Quality of machined surfaces** Roughness of surfaces processed by cutting. Influence of cutting process parameters on the roughness of the processed surface. Influence of the quality of the processed surface on the behavior of the part in operation. **Bibliography:** 1. Amarandei, D., Productica un concept modern de fabricaţie, Oficiul pentru informare documentară pentru construcţia de maşini, Bucureşti, 1999; 2. Popa, H., Economia şi organizarea producţiei, Institutul Politehnic Timişoara, 1984; 3. Dobrotă, D., Bazele aşchierii şi generării suprafeţelor, Editura Sitech, Craiova, 2006; 4. Dobrotă, D. ş.a., Tehnologia construcţiilor de maşini. Teorie şi Aplicaţii, Editura MJM, Craiova, 2001; 5. Dobrotă, D., Chirculescu G., Aşchierea şi generarea suprafeţelor sferice, Editura Sitech, Craiova, 2005; 6. Dobrotă, D., Amza Gh., Bazele proiectării proceselor de prelucrare prin aşchiere, Editura Sitech Craiova, 2007; 7. Păunescu T., Celule flexibile de prelucrare-modelare, simulare şi optimizare, Editura Universităţii "Transilvania" din Braşov, 1998. **III. Discipline: Basics of cutting and surface generation II** **Themes:** **1. Surface treatment by planing** Generalities. Theoretical generation of surfaces by planing. Generation of surfaces with kinematic generators. Generation of surfaces with materialized generators.

	Generation of surfaces with programmed generators. Chip dimensions and tool geometry. Cutting regime in planing. Cutting forces and power **2. Surface processing by mortising** Generalities. Theoretical generation of surfaces by mortising. Generation of surfaces with kinematic generators. Generation of surfaces with materialized generators. Tool geometry. Cutting regime in mortising. Cutting forces and power. **3. Surface treatment by broaching** Generalities. Theoretical generation of surfaces by broaching. Constructive features of the broach. Features of the broaching process. Cutting patterns for broaching. Cutting forces for broaching. **4. Surface processing by turning** Generalities. Theoretical generation of surfaces by turning. Generation of surfaces with materialized generators. Generation of surfaces with kinematic generators. Generation of surfaces with programmed generators. Generation of surfaces with programmed directing. Chip dimensions and tool geometry. Generation of various types of surfaces by turning. Cutting regime in turning. Cutting forces and power. **5. Surface processing by drilling** Generalities. Theoretical generation of surfaces by drills. Drilling kinematics and chip dimensions. Twist drill geometry. Twist drill wear. Cutting regime in drills. Cutting forces, moment and power. **6. Surface processing by widening, deepening** Generalities. Widening. Deepening. Cutting mode. Axial force and cutting moment. **7. Surface processing by boring** Generalities. Chip dimensions and tool geometry. Cutting mode in boring. **8. Surface processing by milling** Generalities. Theoretical generation of surfaces by milling. Milling kinematics and chip dimensions. Milling geometry. Cylindrical milling. Frontal milling. Cutting regime in milling. Cutting forces and torque in milling. **9. Generation by rectification** Generalities. Construction of abrasive tools. The process of chip formation during grinding. Roughness of the ground surface. Generation of flat surfaces. Generation of external surfaces of revolution. Generation of internal surfaces of revolution. **10. Surface treatment by surface finishing processes** Honing. Superfinishing. Lapping. Polishing. **11. Machining helical surfaces** Generalities. Theoretical generation of helical surfaces. Thread machining by turning. Thread machining with taps and dies. Thread machining by milling. Thread machining by grinding. **12. Processing of cylindrical gear tooth surfaces** Generalities. Theoretical generation of the teeth of cylindrical gears. Obtaining the generating curve.

	Obtaining the directing curve. Processes for machining the teeth of cylindrical gears. Machining with materialized generators (copying). Machining with kinematic generators. **13. Machining the tooth surfaces of bevel gears** Generalities. Processes for machining bevel gear teeth. Machining with materialized generator. Machining with kinematic generator. Finishing bevel gear teeth. **Bibliography:** 1. Amarandei, D., Productica un concept modern de fabricaţie, Oficiul pentru informare documentară pentru construcţia de maşini, Bucureşti, 1999; 2. Popa, H., Economia şi organizarea producţiei, Institutul Politehnic Timişoara, 1984; 3. Dobrotă, D., Bazele aşchierii şi generării suprafeţelor, Editura Sitech, Craiova, 2006; 4. Dobrotă, D. ş.a., Tehnologia construcţiilor de maşini. Teorie şi Aplicaţii, Editura MJM, Craiova, 2001; 5. Dobrotă, D., Chirculescu G., Aşchierea şi generarea suprafeţelor sferice, Editura Sitech, Craiova, 2005; 6. Dobrotă, D., Amza Gh., Bazele proiectării proceselor de prelucrare prin aşchiere, Editura Sitech Craiova, 2007; 7. Păunescu T., Celule flexibile de prelucrare-Modelare, simulare şi optimizare, Editura Universităţii "Transilvania" din Braşov. **IV. Discipline: Unconventional Technologies** **1. Areas of use of unconventional technologies** **2. The technological action of erosion processing** Electroerosion machining technology. Electrochemical erosion machining technology. Chemical erosion machining technology. Complex erosion machining technology. Plasma erosion machining technology. **3. Radiation erosion machining technology** Electron beam processing technology. Ion beam processing technology. Photon beam (laser) processing technology. **4. Ultrasonic processing** Physico-chemical and technological bases. Technological machinery and equipment. Processing technologies. Principles of ultrasonic block design and choice of processing regime. **Bibliography:** 1. Amza, Gh., Dobrotă, D., Ultrasunete. Aplicații active, Editura AGIR. București, 2007; 2. Dobrotă, D. Amza Gh., Bazele proiectării proceselor de prelucrare prin aşchiere, Editura Sitech, Craiova, 2007; 3. Gavrilaş,I., Marinescu, N. I., Tehnologii neconvenţionale. Ed. Tehnică, Bucureşti, 1992; 4. Marinescu, N., ş.a., Prelucrări neconvenţionale în construcţia de maşini, Ed. Tehnică, Bucureşti, 1993; 5. Nanu, A., Tehnologia materialelor, Ed. Didactică şi Pedagogică, Bucureşti, 1977;

	6. Nanu, A., Nanu, D., Prelucrarea dimensională prin eroziune electrică în cîmp magnetic, Ed. Facla, Timişoara, 1983; 7. Neagu, C., ş.a., Tehnologia construcţiei de maşini, Ed. Matrix Rom., Bucureşti, 2002; 8. Nichici,Al., ş.a., Prelucrarea prin eroziune în construcţia de maşini, Ed. Facla, Timişoara,1983; 9. Nichici, Al., Tehnologia materialelor, Institutul politehnic „Traian Vuia", Timişoara, 1981; 10. Popescu, I., ş.a., Tehnologia fabricării produselor mecanice, Ed. Matrix Rom., Bucureşti, 2002.
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 Maria-Nicoleta