

<b>Field name</b>	<b>Description</b>
<b>University</b>	„Constantin Brâncuși” University of Târgu-Jiu
<b>Faculty</b>	Faculty of Engineering
<b>Department</b>	<b>Industrial and Automatic Engineering</b>
<b>Position in the list</b>	31
<b>Rank</b>	Associate professor
<b>Disciplines</b>	<b>Measurements and instrumentation</b> <b>Electrical engineering</b> <b>Electricity management</b>
<b>Scientific field</b>	<b>Energy Engineering</b>
<b>The description of the academic position</b>	Associate professor position 31 - Department of Industrial and Automatic Engineering / Faculty of Engineering - position of associate professor, including teaching activities in the disciplines of the position put up for competition that are found in the curricula of undergraduate and master's degree programs within the faculty. The position also includes, in addition to teaching and assessment activities, consultations, the subjects in the curriculum included in the position put up for competition and tutoring activities. The position is put up for competition for an indefinite period.
<b>Academic duties</b>	<b>Weekly teaching activity consisting of:</b> 2 hours of course and 2 hours of laboratory in the discipline Measurements and instrumentation; 2 hours of course and 4 hours of laboratory in the Electrotechnical discipline; 2 hours of course, 2 hours of seminar and 2 hours of project, in the discipline of Electricity Management; 2 hours consultation activities; 2 hours of assessment activities; 1 hour tutoring activities. The position also contains scientific research activities in the field, according to the National Education Law no. 1/2011, with subsequent amendments and completions, and the job description, which will be prepared as an annex to the employment contract.
<b>Employment salary</b>	<b>6537 lei</b>
<b>Publication date on site UCB</b>	<b>April 27<sup>th</sup> 2022</b>
<b>Starting and final dates of the registration</b>	<b>April 27<sup>th</sup> - June 22<sup>th</sup> 2022</b>
<b>Date, day of the week and hour for the promotion exam</b>	<b>July 7<sup>th</sup> 2022 , Thursday, hour 10<sup>00</sup></b>
<b>Venue where the promotion exam</b>	<b>Faculty of Engineering, room L3</b>
<b>The dates for the competition tests, including lectures, courses, etc.</b>	<b>July 7<sup>th</sup> 2022</b>
<b>Date of exam results communication</b>	<b>July 7<sup>th</sup> 2022</b>
<b>Starting and final dates for contesting the results</b>	<b>July 8<sup>th</sup> -12<sup>th</sup> 2022</b>
<b>Topics for preparing the promotion exam</b>	For the candidates coming from higher education, the fulfillment of the national minimum standards for the position of associate professor in accordance with the National Education Law no. 1/2011, with the subsequent amendments and completions, with the MENCS Order no. 6129 / 20.12.2016, with the Methodology for teaching and research positions of the "Constantin Brâncuși" University of Târgu Jiu. Candidates who come from outside the higher education system also take a test that consists of a public

lecture, with the following theme:

**I. Discipline: Measurements and instrumentation**

**Topic:**

**1. Sizes. Measuring**

Physical sizes; Classification of measurable quantities; Units of measurement; Dimensional equation. Size systems; Prefixes and symbols for decimal multiples and submultiples; Standards; Measurement methods. Classification of measurement methods; Measuring instruments; Classification of measuring instruments; Characteristics of measuring instruments; Conditions for the use of measuring instruments

**2. Measurement errors**

Sources of measurement errors; Classification of measurement errors; Calculation of measurement errors; Random errors; Systematic errors; Aberrant error

**3. Determining the statistical parameters which characterize the data distribution**

Data centering trend indicators (Trend parameters); Data Spread Trend Indicators (Spread Parameters); Laws of distribution (distribution) of errors

**4. Processing and presentation of measurement results**

**5. Measuring the current intensity d.c. and a.c.**

Direct methods for measuring electric current intensity; Indirect methods of measuring electric current intensity; Extension of the measuring range.

**6. Measurement of voltages in d.c. and a.c.**

Direct methods for measuring electrical voltage; Indirect methods of measuring electrical voltage; Extension of the measuring range.

**7. Temperature measurement**

Mechanical temperature measurement methods: liquid glass thermometers, metal expansion thermometers, Bourdon tube liquid thermometers; Electrical temperature measurement methods: thermometers with metal resistors, thermometers with resistance based on semiconductors, thermocouples made of metal, thermocouples made of semiconductors.

**8. Pressure and pressure difference measurement**

Pressure measuring methods; Liquid manometers; Pressure measuring apparatus; Installation of pressure gauges.

**Bibliography:**

1. Cepișcă, C., Serîțan, G.C., Măsurări electrice și sisteme de măsurare, vol. I, Editura Politehnica Press, București, 2004
2. Ciocîrlea-Vasilescu A., Constantin M., Măsurări tehnice, Editura Cvasidocumentația PROSER & Printech, București, 2005
3. Iliescu C., Pantelimon B., s.a., Metrologie. Sisteme de măsurare, Ed. ICPE, București, 1994
4. Jurca T., Stoiciu D., Instrumentație de măsurare. Structuri și circuite, Editura de Vest, Timișoara, 1996
5. Opris, I., Măsurarea mărimilor neelectrice, PROXIMA, Universul Energiei, 2005 (reeditare 2006)

6. Pantelimon B., Iliescu C., Măsurarea electrică a marimilor neelectrice, Ed. Tritonoc, 1995
7. Voiniciuc C., Crețu M., Sarmanu C., Potângeanu P., Măsurări electrice și neelectrice. Elemente de metrologie generală și instrumentație, Universitatea Tehnică "Gh. Asachi", Iași, 1999
8. Vornicu L., Dimitriu, L., Nica V., Aparate electronice de măsurare și control, Tipografia Universității Tehnice "Gh. Asachi" Iași, 2001
9. Walt Boyes, Instrumentation Reference Book, Third Edition, Butterworth Heinemann, Boston, Oxford, Johannesburg, Melbourne, New Delhi, Singapore, 2003
10. Webster J., Eren H, Measurement, Instrumentation and Sensors Handbook, CRC Press 2014

## **II. Discipline: Electrical Engineering**

### **Topic:**

#### **1. Electrostatics**

Electric charge; Coulomb's law; Electrostatic field; Induction and electric flux; Electric potential; Electrical capacity; Connecting (connecting) capacitors; Dielectric polarization; The energy of the electric field between the armatures of a capacitor.

#### **2. Electrokinetics**

Direct current; Effects of electricity; Ohm's law. Electrical resistance; Electricity and power. Joule-Lenz's law; Maximum energy transfer theorem;

#### **3. Direct current electrical circuits**

Electrical circuits; Kirchhoff's theorems; Superposition theorem in direct current linear circuits; Multipolar circuits and their equivalence; Series and derivation connection, star-delta equivalence; Equivalent generator theorems; Contour current method; Node potential method; Equivalent voltage generator theorem (Thévenin); Equivalent current generator theorem (Norton); Non-linear DC circuits.

#### **4. Magnetic field**

Magnetic phenomena; Magnetic field; Magnetic field forces, Lorenz force; Laplace Force; Ampere's theorem; Magnetic induction, magnetic field strength, magnetic flux.

#### **5. Magnetic circuits**

Magnetic circuits; Magnetic materials; Magnetization of ferromagnetic materials; Magnetic circuit law; Electromagnetic induction; Electromagnetic induction phenomena; Law of electromagnetic induction; Own inductance and mutual inductance; Self-induction electromotive voltage; Magnetic field energy.

#### **6. Alternating current**

Single-phase alternating current. Production of alternating current (voltage); Characteristic sizes of alternating current (voltage).

#### **7. Permanent sinusoidal regime**

Sinusoidal operations; Symbolic representation of sinusoidal quantities; Geometric representation (by phasors); Analytical representation (complex).

### **8. Alternating current circuits**

Permanent alternating current circuits; R, L series circuit; R, C series circuit; R, L, C series circuit; Sine powers; Instant power; Active power; Reactive power; Apparent power; Complex power; Resonance in alternating current circuits; Serial resonance (voltage resonance); Parallel resonance (current resonance).

#### **Bibliography:**

1. Adăscăliței A., Electrotehnică, Editura "Gh. Asachi" Iași, 2003
2. Cazacu D., Electrotehnica, Editura Sitech, Craiova, 2006
3. Dumitriu L., Bazele electrotehnicii, Ed. Matrix Rom, București, 2008
4. Leuca T., Molnar C.O, Arion M. N., Elemente de bazele electrotehnicii. Aplicații utilizând tehnici informatice, Editura Universității din Oradea, 2014
5. Moraru A., Bazele electrotehnicii, Teoria circuitelor electrice, Ed. Matrix Rom, București, 2002
6. Popescu C., ș.a., Electrotehnică și mașini electrice, Ed. Sitech, Craiova, 2008
7. Puiu-Berizintu M., Bazele electrotehnicii: circuite electrice liniare, Editura Alma Mater Bacău, 2010
8. Simion, E., Maghiar, T. Electrotehnică, Ed. Didactică și Pedagogică, București, 1981
9. Tomescu A., ș.a., Bazele electrotehnicii. Câmp electromagnetic, Matrix Rom, București, 2002
10. Sora, C. Bazele electrotehnicii: Teorie și aplicații, Editura Politehnica, Timișoara, 2014

### **III. Discipline: Electricity management**

#### **Topic:**

#### **1. Energy management and its purpose**

General notions of energy management; The role of energy management in the context of integration  
Romanian society in the European community; Getting started with energy managers; Implementing an energy management program; Initiation of an energy management program

#### **2. Energy. Resources and reserves. Production and consumption**

Primary energy resources and production; The evolution of primary energy consumption and production; Evolution of electricity production and consumption; Technical condition of installations in the energy sector.

#### **3. The current situation of the energy sector**

Legislative and institutional framework; Electricity market; Analysis of the current situation of the energy sector

#### **4. Energy efficiency and final energy consumption**

Final energy consumers; Energy management for industrial and household consumers; Management of electricity supplied to final energy consumers

#### **5. Secondary energy resources**

General aspects; Definitions, types, characteristics; Recovery directions; The effects of the recovery of secondary energy resources; Rational use of energy; Use of

	<p>renewable energy</p> <p><b>Bibliography:</b></p> <ol style="list-style-type: none"> <li>1. Dessler, Gary, Management - Principles and Practices for Tomorrow's Leaders, editura Prentice Hall, Upper Saddle River, NJ, 2004</li> <li>2. Ciobanu L., Tratat de energie electrică. Surse de energie electrică, Universitatea Tehnica "Gh. Asachi" Iași, Editura Matrix Rom, 2010</li> <li>3. Chiuță A., Chiuță I., Stoica C., Anghel E., Universul Energiei, Editura Electra, 2004</li> <li>4. Golovanov N., Albert H., Lăzăroiu G.C., Surse regenerabile de energie electrică în sistemul electroenergetic, Editura AGIR, București, 2015</li> <li>5. Golovanov N., Mogoreanu N., Toader C., Porumb R., Eficiență energetică. Mediul. Economia modernă., Editura AGIR, București, 2017</li> <li>6. Lucian V., Resurse și instalații de producere a energiei electrice, Editura AGIR, București, 2006</li> <li>7. Luca A., coord., Principii de management energetic, Ed. Tehnică București, 1998</li> <li>8. Pătrașcu R., Producerea energiei și mediul în contextul dezvoltării durabile, Editura POLITEHNICA, Bucuresti, 2006</li> <li>9. Pătrașcu R., Răducanu C., Dumitrescu I.S, Utilizarea Energiei, Editura BREN, București 2004</li> <li>10. Rugină V., Utilizarea eficientă a energiei în condițiile pieței de energie, Revista Energetica, Iunie, anul 55 - nr.6, IRE, Bucuresti, 2007</li> <li>11. Vaida, V., Strategia energetică a României. Orientări strategice pe termen mediu și lung, Editura AGIRSIER, București, 2015</li> <li>12. Vuc Gh., Managementul energiei electrice, Ed. AGIR, București, 2001</li> </ol>
<p><b>Description of the competition procedure</b></p>	<p>The competition is conducted in accordance with the Competitive Framework Methodology for filling vacant teaching and research positions in higher education, approved by H.G. no. 457 of 04.05.2011, with subsequent amendments and completions, the National Education Law no. 1/2011, as subsequently amended and supplemented, H.G. no. 883/2018 and the Methodology for filling teaching and research positions, approved in the meeting of the Senate of the University "Constantin Brâncuși" from Târgu-Jiu from 31.01.2019 and of the Specialized Commissions of the Senate of the University "Constantin Brâncuși" from Târgu-Jiu, reunited in meeting in dated 13.11.2020, with the subsequent amendments from the Senate Decisions, no. 19 of 28.10.2021 and no. 11 of 11.04.2022: The competition file constituted by the candidate, together with the electronic support, which contains the scanned file, is submitted with registration number to the address of the higher education institution specified on the competition website, directly or through postal services or courier to confirm receipt. The competition file is sent to the members of the competition commission starting with the closing date of the submission</p>

process of the competition files, but not later than 5 working days before the first test of the competition. The submission of the file, in electronic format, submitted by the candidates, after multiplying in 5 copies, is done by the dean of the faculty. The file in printed format, submitted by the candidate, will be sent to the chairman of the commission. The competition commission evaluates the candidate from the perspective of fulfilling the minimum standards specific to the position as well as verifying the following aspects: the relevance and impact of the scientific results of the candidate; 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 scientific collaborations; the candidate's ability to lead research and development projects; the professional experience of the candidate in institutions other than the competition organizing institution; teaching and research career development proposal. In order to hold the position of associate professor, the candidates must cumulatively meet the following conditions: to hold the scientific title of doctor in the field corresponding to the disciplines in the position; to meet the national minimum standards for teaching positions, specific to the teaching position of associate professor approved by Order of the Minister of National Education, according to art. 219 paragraph (1) of Law 1/2011 - National Education Law, with subsequent amendments and completions.

In case of a tie, the commission will consider the following criteria for the tie, in order:

- Proposal for the development of 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 hierarchy of candidates and nominates the candidate with the best results. The chairman of the competition committee draws up a report on the competition, based on the assessment reports drawn up by each member of the competition committee and in compliance with the hierarchy of candidates decided by the committee. The report on the competition is approved by decision of the competition committee and is signed by each member of the competition committee and by the chairman of the committee. The president of the competition commission submits the competition report approved by decision of the commission, the appreciation reports and the original file submitted by the candidate to the Faculty Council. The competition files, including the report on the competition, are submitted to the dean of the faculty, or to the responsible vice-dean, who organizes their discussion in

	<p>the Faculty Council and ensures the conditions for the consultation of the competition materials by the members of the Council. The faculty council analyzes the observance of the competition commission procedures and approves or not the report on the competition. The hierarchy of candidates established by the competition committee cannot be modified by the faculty council. The competition files approved by the Legal Department and by the Board of Directors are sent to the University Senate in order to validate the results of the competition. Appeals can be filed exclusively for non-compliance with legal procedures. The appeal is formulated in writing, is registered at the UCB registry and is resolved by the appeals commission. The appeal can also be sent online to mail.utgjiu.ro under the conditions provided by art. 25. Alin (5). The result of the contest is published on the web page of the contest, within 2 working days from its completion.</p>
<p><b>List of documents</b></p>	<p><b>A1. The application for registration</b>, signed by the candidate, which includes a statement on his own responsibility regarding the veracity of the information presented in the file;</p> <p><b>A2. Proposal for the development of the candidate's career</b> both from the didactic point of view and from the point of view of the scientific research activities; the proposal is drafted by the candidate, comprises a maximum of 10 pages;</p> <p><b>A3. Curriculum vitae</b> of the candidate in original form signed by the candidate on each page which must include: information about the studies carried out and the diplomas obtained; relevant professional experience and jobs; information on the research and development projects he/she has led as a project director or as a member, indicating for each source of funding; information on awards or other elements recognizing the candidate's scientific contributions, other relevant information;</p> <p><b>A4. List of papers of the candidate</b> in printed format (original, signed on each page) will be structured as follows: the list of the maximum 10 papers considered by the candidate to be the most relevant for his own professional achievements, which are included in the file and electronic format in the file and which can be found in the other categories of papers provided for in this article; doctoral thesis or theses; books and book chapters; articles / studies, published in journals from the main international scientific stream; publications in extenso, published in papers of the main specialized international conferences; research/development-innovation projects on the basis of a contract/grant which he has led as a project director or in which he/she has acted as a member, indicating for each source of funding; patents and other industrial property titles; other works and scientific contributions or, as the case may be, in the field of artistic creation;</p> <p><b>A5. Completion sheet of the post-specific standards</b> completed and signed by the candidate in printed format (originally signed on each page).</p>

**A6. Documents regarding the holding of a doctor's degree.** The legalized copy of the doctoral degree and, in case the original doctoral diploma is not recognized in Romania, the certificate of recognition or equivalence of it in legalized copy or the copy according to the Ministerial Order confirms the granting of the doctoral degree;

**A7. Summary of the doctoral thesis** in Romanian and in a language of international circulation (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/advanced studies, Certificate attesting psychopedagogical training) or, if the original diplomas are not recognized in Romania, the certificates of recognition or equivalence thereof, copies of other diplomas attesting to the candidate's studies. Copies are signed by the candidate for certification "according to the original";

**A9. Transcripts, diploma supplements or school statements** issued for each cycle of study;

**A10. Copy of identity card;**

**A11. Copies of documents certifying 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 in Law 1/2011-National Education Law, with the subsequent amendments and completions and the Framework Methodology issued at national level;

**A13. Medical certificate** showing that he is fit to carry out teaching activity;

**A14. List of references** with their contact details: for the position of associate professor, at least 3 names and contact addresses of personalities from the respective field, from the country or from abroad, outside the higher education institution whose position is being put up for competition, who agreed to draw up letters of recommendation regarding the professional qualities of the candidate.

**A15.-**

**A16. Statement of responsibility,** in original (handwritten) signed by the candidate. The statement must state the correctness of the data in the file and the fact that it relates to his own activities and achievements, otherwise the candidate will bear the consequences of making false statements, in accordance with the legislation in force.

**A17. The folder comprising a maximum of ten of the candidate's most significant papers,** in electronic scanned form (CD / DVD), and the books and book chapters will be submitted in physical format. In addition, the electronic support will include the list of papers of the candidate cf. A4 in word format.

**A18. Document for paying the registration fee** for the competition.

A CD / DVD, or other electronic format, with all its scanned contents, including the folder with the 10

	significant works, is attached to the competition file, in order to be sent to the competition commission.
<b>Address where the competition file will be sent</b>	"Constantin Brâncuși" University of Târgu-Jiu, Unirii Street, no. 36, Târgu-Jiu, Gorj
<b>Commission</b>	
<b>Methodology</b>	<b>Uploading doc, docx or PDF files. The maximum supported file size is 10MB.</b>

Dean,  
Assoc.Prof Cristinel Popescu

Department Director,  
Lecturer Alin Nioață