

Field name	Description
University	“Constantin Brâncuși” University din Târgu Jiu
Faculty	Faculty of Engineering and Sustainable Development
Department	Department of Automation, Energy, Environment and Sustainable Development
Position on functions payroll	11
Function	Associate Professor
Disciplines of teaching plan	<ul style="list-style-type: none"> • Power electronics • Electronics • Digital Electronics • Robotics • Power management systems
Scientific field	Electronic
Job description for the job competition	Associate Professor position 11 - Automation Department, Energy, Environment and Sustainable Development/Faculty of Engineering and Sustainable Development-Associate Professor post, including teaching activities at the disciplines of the job competition according to the plans of education of the licence programmes studies of the faculty. The post also includes educational activities and specific research disciplines from the educational plan of the post competition.
Responsibilities	<ul style="list-style-type: none"> ▪ Teaching a weekly course consisting in 2 lecture hours and 3 laboratory hour on the discipline Power electronics, 2 lecture hours on the discipline Electronics, 2 lecture hours on the discipline Digital Electronics, 2 lecture hours and 2 laboratory hour on the discipline Robotics and 2 lecture hours and 2 laboratory hour on the discipline Power management systems ▪ It also contains other activities included in teaching load: practical guidance, mentoring diploma projects and scientific research in the field.
Employment wage	3195
Date of publication in the Official Gazette	28.04.2017
Start and end of registration period	Start :28.04.2017 End: 05.07.2017
Place of support for the lecture	Faculty of Engineering and Sustainable Development room 015
Dates of the competition, including lectures, courses etc..	21.07.2017 Prelegere ora 11.00
Date of the communication of the results	24.07.2017
Start and end of the period for contestation	Start 25.07.2017 End 29.07.2017

Theme of the competition

For the candidates coming from the higher education system it is checked the minimum performance standards for the position in accordance with Order No.. 4204/2013 and the methodology for occupying teaching and research positions of the University "Constantin Brancusi" from Targu Jiu.

Candidates from outside higher education system will take an examination consisting of public lecture with the following topics:

I. Power electronics

Electronic power devices. Power Diodes, Power Transistors, Thyristors, Triacs.

Rectifiers. Single-phase, single-phase rectifier, not recommended. One-phase bi-rectifier rectifier. Restrained voltage filtering. Unmodified polyphase rectifiers.

Controlled Rectifier. Single-phase rectifier. Polyphase rectifiers. Rectifiers ordered with null diode. Pulses of current rectified.

Converters c.c.-c.c. Basic principles. The step-down converter. The step-up converter. Cuk converter. Converter c.c.-c.c. In deck.

Inverters. PWM Inverter. One-phase inverter. Three-phase inverters.

Resonant converters. The concept of resonant circuit. Converter with resonant load circuit

Bibliography:

1. Ilie Borcoși, Command Structures in Power Electronics, Academica Brâncuși Publishing House, Tg. Jiu, 2011
2. Viorel Popescu - Power electronics, West Publishing House, Timisoara, 2005
3. Mircea Bodea SA - Power Diodes and Thyristors, Technical Publishing House, Bucharest, 1990
4. Florin Ionescu s.a. - Power Electronics, ICPE Publishing House, Bucharest, 2000
5. Nicu Bizon, Industrial Electronics, Matrix Rom Publishing House, Bucharest, 2000
6. Viorel Popescu - Uninterruptible Power Supplies, West Publishing House, Timisoara, 2004
7. Viorel Popescu - Power Supply in Telecommunications, West Publishing House, Timisoara, 2002

II. Electronics

Physics of semiconductors. The p-n junction. Semiconductor diodes. Bipolar transistor with junction. Description, operation. Field Effect Transistors (Unipolar). Multi-junction devices. Amplifiers. Operational Amplifiers . Rectifiers. Voltage stabilizers

Bibliography:

1. B. Gray, P. E., C. R., Analog integrated circuits. Analysis and Design. Translation from English, Technical Publishing, Bucharest, 1983
2. Olaru O., Electronic devices and circuits - Tg-Jiu, 1996
3. Eleodor Gh. Bistriceanu, Introduction to electronics and its applications, Matrix Rom Publishing House, 1996, Bucharest
4. Cosmin Popa, Analog Integrated Circuits, MatrixRom Publishing House, Bucharest, 1999.
5. Virgil Duma, Electronica, Polytechnic Publishing House Timisoara, 2004.
6. Elena Niculescu, Electronic Devices, Electrotechnical Publishing House, Craiova, 1985.

III. Digital electronics

Elementary structures integrated with bipolar transistors. Diode and transistor as switching element; Standard TTL gateway: structure, operation, features and parameters Schottky TTL subfamilies: 54/74 series S, LS, AS, ALS, F; Specialized TTL gates: SI, NO, with Trigger Schmitt input, with open collector outputs, three states;

Elementary structures integrated with unipolar transistors. The MOS transistor used as commutation element; CMOS gates; CMOS circuit families: 4000 / 74C series, 74HC series, 74AC series; Specialized CMOS gates.

Flip-flop circuits. Monostable circuits, astable circuits.

Structure of Integrated Circuits. Families. gates; Multiplexers, decoders, encoders; Travel registers.

Semiconductor memories. Classifications, characteristic sizes; ROM memory circuits (PROM, EPROM, EEPROM), access cycles; Memory RAM circuits, memory cells; Static RAM circuits, dynamic RAM, construction types, access cycles;

Bibliography:

1. Gheorghe Stefan - Circuits and Digital Systems, Editura Tehnica, Bucharest 2000
2. Gheorghe Stefan, V. Bistriceanu - Digital integrated circuits, problems, design, Albasta Publishing House, Cluj Napoca, 2000
3. Gheorghe Toacse, Dan Nicula, - Digital Electronics, vol. I and II, Technical Publishing House, Bucharest, 2005
4. John Wakerly, Digital Circuits. Principles and Practices of Functioning Used in Design, Theora Publishing House, Bucharest, 2002
5. Mihăilescu Adrian, Numerical Electronic Circuits - Laboratory Guide, Academica Brâncuși Publishing House, Tg-Jiu, 2003
6. Tiberiu Mureșan, Integrated Numerical Circuits, West Publishing House Timișoara, 2005
7. Gh. Băluță, Numerical Applications Screwdrivers, MatrixRom Publishing House, Bucharest, 1999

IV. Robotics

The introductory notion of mechatronics. Robots; Compliant driving; Hierarchical leadership systems; principles; Information flows

Robot models. Geometric patterns; couplings; classifications; The Denavit-Hartenberg model

Special robot transducers. Interceptive transducers; Extractive transducers.

Operation of robots. Driving principles, driving with DC motors; Drive with asynchronous motors; Stepper motor drive; Hydraulic drive, pneumatic drive

Bibliography:

1. M. Ivănescu, Advanced Systems in Robotics Management, Scrisul Românesc Publishing House, Craiova, 2003
2. Cezar Oprisan, Introduction to Cinematic and Dynamics of Robots and Manipulators, CERMI Publishing House, Iași, 1998
3. Mircea Dreuceanu, Machines working in shale. Automated Manufacturing, Polytechnic Publishing House, Bucharest, 2001
4. Romeo Ionescu, Industrial Robots, DICM Information Office Publishing House, Bucharest, 1996.
5. Doina Dragulescu, Planning the Industrial Robots Movements, Helican Publishing House, Bucharest, 1994
6. Ioan Doroftei, Robotics, Cerme Publishing House, Bucharest, 2005.

	<p>V. Power management systems</p> <p>Introduction. Technological processes in energy. Considerations about the energy production process. Transport, distribution and consumption of electricity</p> <p>Automatic regulation systems. Considerations on the management of technological processes. Continuous automatic adjustment structures. Operating modes of an automatic adjustment system and quality indices for their appreciation. Typical Continuous Adjustment Laws. Criteria for granting regulators</p> <p>Automatic numerical control systems. Structure of numerical driving systems. Numerical drive systems with microprocessors. Distributed driving systems. Hierarchical leadership systems.</p> <p>Automation in thermoelectric power plants. Processes and installations in a thermoelectric plant. Automation of drum steam boilers. Automatic pressure regulator in the drum. System of automatic regulation of the depression in the outbreak.</p> <p>Bibliography:</p> <ol style="list-style-type: none"> 1. Vînătoru, M., The Automated Management of Industrial Processes, Vol. I, Ed. Universitaria Craiova 2001. 2. Dumitrache I., et al. - Electronic Automation E.D.P. Bucharest 1993. 3. Ionescu T. - Systems and equipment for process management, E.D.P. 1982. 4. Marin C. - Structures and laws of kings of automatic regulation, Universitaria Publishing House, Craiova 2000. 5. Voicu Mihail - Introduction to Automatic, Ed. Polirom, Iași 2002 6. Sergiu Călin, Dumitrache I. - Automatic regulators, E.D.P. Bucharest 1985. 7. Vînătoru M., Olaru O. - Automatic Systems, Spicon Publishing House, Tg-Jiu 1997.
<p>Description of the procedure of the job competition</p>	<p>In accordance with the Methodology framework for competition for filling vacant teaching and research jobs in higher education as approved by H. G. nr. 457 of 04.05.2011 National Education Law no 1/2011 and the Methodology for teaching and research posts, approved in the Senate meeting of "Constantin Brancusi" University of Targu Jiu from 11. 11. 2016 , the procedure for filling the vacant position is: the competition dossier is constituted by the candidate and together with the electronic support which contains</p>

scanned file shall be submitted with the registration number at the higher education institution to the address specified on the University's web page competition, directly or via courier or postal services which allow the acknowledgement of receipt. The competition dossier shall be forwarded to the competition Committee members.

The dossier expedition, in electronic form, filed by the candidates, after ripping in 5 copies, is made by the dean's faculty. In print copy, the file submitted by the candidate will be forwarded to the Commission President. The contest committee assesses the candidate from the point of view of fulfilling the minimum job-specific standards and verifying the following aspects.

The competition Commission shall evaluate the candidate in relation to minimum specific standards and verifying the following aspects: the relevance and the impact of the scientific results of the candidate; the candidate's ability to guide students and young scientists; the candidate's teaching skills; the candidate's ability to transfer knowledge and its results to the economic or social environment or to popularize its own scientific results; the candidate's ability to work in a team and the efficiency of its scientific collaborations; the candidate's ability to drive research and development projects; the professional experience of the candidate in institutions other than the institution that made the post in the competition, the proposal for the development of the teaching and research career.

To occupy the post of Associate Professor, the candidates should meet the following cumulative conditions: to hold the scientific title of doctor in the field of disciplines corresponding to the post; fulfil the minimum standards for the employment of national teaching posts, specific to the didactic function of Associate Professor approved by order of the Minister of National Education, according to art. 291 paragraph 1 of the Law of National Education, law No. 1/2011. In the event of a tie score, the Commission will consider the following tiebreaker criteria:

- the proposal for the development of teaching and research careers
- the candidate's contributions to increasing the prestige of UCB
- the candidate's contribution to the institutional development of UCB
- the candidate's involvement to the

	<p>development of an efficient management of the Department, the Faculty Senate, the University Council</p> <ul style="list-style-type: none"> ● involvement in editorial or scientific activity of UCB publications ● involvement in organizing scientific events of UCB ● utilisation the publishing and journals of UCB in the valorification and popularization of scientific research <p>The competition commission will decide the candidate's hierarchy and nominate the candidate who obtains the best results. The Chairman of the competition commission shall draw up a report on the competition, on the basis of the assessment made by each Member of the Commission and in accordance with the hierarchy of the candidates decided by the Commission. The report on the competition is approved by Commission decision and is signed by each of the members of the Commission and by the President of the Commission. The Chairman of the competition shall submit the report of the competition approved by decision of the Commission, the preliminary list of appreciation and the original dossier submitted by the candidate at the Faculty Council. The dossiers of the competition, including the report on the competition, shall be forwarded to the faculty's Dean who organizes their discussions into the Council Faculty and provides the conditions for consulting the competition materials by the Board members. The faculty Council examines the procedures and does or doesn't give consent upon the report of the competition. The hierarchy of candidates drawn up by the Commission of competition cannot be modified by the Faculty Council. The juridical advised competition dossiers are submitted by Senate UCB. The contestation may be lodged solely for failure to comply with legal procedures. The contestation shall be filed in writing, shall be recorded at the Registration Office of the institution of high education and the University Senate is deciding. The result of the competition will be published on the website of the competition, after its completion.</p>
<p>List of document</p>	<p>A1. Application for joining the competition, signed by the candidate, which includes an solemn declaration concerning the veracity of the information submitted in the dossier;</p> <p>A2. Proposed development of the candidate's career both from the didactic point of view and from</p>

the point of view of the scientific research activities; The proposal is drafted by the candidate, contains up to 10 pages and is one of the main criteria for the selection of candidates;

A3. Curriculum vitae of the candidate in the original signed by the candidate on each page that must include: information about the studies and the diplomas obtained; Professional experience and relevant jobs; Information about the research development projects he has led as a project manager or as a member, indicating for each source of funding; Information about prizes or other elements of recognition of the candidate's scientific contributions

A4. Candidate's list of papers in original printed form on each page that will be structured as follows: a list of the maximum 10 papers considered by the candidate to be most relevant to their own professional achievements, which are included in and electronic format in the file and which Can also be found in the other categories of papers listed in the candidate's list of papers; PhD thesis or theses; Patents and other industrial and intellectual property titles; Books and chapters in books; Articles / studies in extenso, published in journals from the main international scientific flow; Publications in extenso, appearing in the works of the main international conferences; Other works and scientific contributions or, as the case may be, artistic creation;

A5. The verification of compliance with the standards of presentation in the competition completed and signed by the candidate in printed format, originally on each page.

A6. Documents relating to the possession of the doctoral degree. The certified copy of the doctoral degree and, if the original doctor's degree is not recognized in Romania, the certificate of its recognition or equivalent in a legalized copy or the copy after the Minister's Order asks to confirm the granting of the doctor's degree;

A7. Summary of the PhD thesis in Romanian and in an international language on a maximum of one page per language;

A8. Other diplomas certifying candidate's studies, copies of other diplomas certifying candidate's studies: baccalaureate diploma, bachelor's degree, master's degree / in-depth studies, certificate attesting psychopedagogical training or if the original diplomas are not recognized in Romania, attestations Their recognition or their equivalents, copies of other diplomas certifying the candidate's studies. The copies shall be

	<p>signed by the candidate for certification according to the original;</p> <p>A9. Enrollment sheets, diploma supplements or school situations issued for each study cycle;</p> <p>A10. Copy of identity card</p> <p>A11. Copies of documents proving the change of name if applicable (marriage certificate or proof of name change);</p> <p>A12. Declaration of own responsibility of the applicant that is not in any situation of incompatibility laid down in the law No. 1/2011 of National Education Framework and Methodology issued at national level</p> <p>A13. Medical certificate from which it appears that he / she is capable of teaching;</p> <p>A14. List of referees with their contact details. At least 3 personalities from the respective field in the country or abroad, external to UCSF, who agreed to draw up letters of recommendation on the professional qualities of the candidate</p> <p>A15. The document for payment of the registration fee for the competition.</p> <p>A16. Statement of assumption of responsibility, in original (signed) signed by the candidate. The statement must state the correctness of the data in the file and the fact that it relates to its own activities and achievements, otherwise the candidate will bear the consequences of false declarations in accordance with the legislation in force.</p> <p>A17. Map comprised of a maximum of ten of the papers considered the most significant of the candidate, in scan form on electronic support (CD). In addition, the electronic support will also include the candidate's list of A4 word-sized candidates</p> <p>A CD / DVD, or other electronic format, with its entire content scanned including a map of the 10 significant works, is attached to the contest file for submission to the contest committee.</p>
Address where to send the competition dossier	"Constantin Brâncuși" University from Târgu-Jiu, Str. Unirii, nr. 36, Târgu-Jiu, Gorj county
Commission	
Methodology	Upload files with extension doc, docx and PDF. The maximum supported size of a file is 10 MB.