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АВТОМАТИКА

Н. Делийски, Н. Тумбаркова, Н. Тричков, Ж. Гочев, Д. Ангелски. Изчисляване на коефициента на топлопроводност на дървени детайли при едностранно нагряване 3

Key Words: Flat wood details; one sided heating; plasticizing; bending; temperature conductivity.

Abstract. An approach for the computation of the thermal conductivity of flat wood details during their one sided heating process before bending has been suggested. Mathematical descriptions of the specific heat capacity, thermal conductivity, and density of the non-frozen wood in the hygroscopic range have been introduced in own 1D non-linear mathematical model of one mentioned process. For the numerical solution of the model a software program has been prepared in the calculation environment of Visual FORTRAN Professional developed by Microsoft. With the help of the program, the 1D non-stationary temperature distribution along the thickness of subjected to one sided conductive heating flat wood details aimed at their plasticizing in the production of curved back parts of chairs has been calculated. The change in the thermal conductivity as a function of the temperature, moisture content, and basic density for beech details with an initial temperature of 20 °C, moisture content of 0.15 kg.kg⁻¹, and thickness of 16 mm during their 30 min one sided heating at temperature of 80 °C, 100 °C, and 120 °C of the heating metal body has been computed, visualized and analyzed.

Р. Хрисчев. Специфики на ERP системите в производството на опаковки от велпапе 8

Key Words: ERP systems; packaging production; corrugated board; recycled paper; model of implementation.

Abstract. The article presents typical features of planning and implementation of a specialized ERP system in packaging production plants from corrugated board. The specific requirements from the customer point of view for systems automation in the production of corrugated packaging from recycled paper are systematized. An overview and classification of the ERP systems has been made and various types of systems implementation are presented. A model of the process implementation of ERP systems in corrugated packaging factory and main phases of project realization is proposed. The phases of the project implementation and distribution of responsibilities of the participants are described. The key indicators that generate benefits of implementing ERP system in this type of production are referred.

Н. Ангелов. Влияние на скоростта и честотата на повторение на импулсите при лазерно маркиране на изделия от стомана 41Cr4 14

Key Words: Laser marking; numerical experiments; fiber laser; steel 41Cr4; speed; frequency; power density.

Abstract. The advantages of laser marking over other marking methods are discussed. The influence of speed and frequency on the process of laser marking by melting with a fiber laser on specimens of structural steel 41Cr4 was investigated. Numerical experiments were received using the program TEMPERATURFELD3D. Graphics of the dependence of temperature from speed and frequency for two power densities were obtained. Preliminary work intervals of the speed and frequency for two power densities for the material under study were determined.

ОБУЧЕНИЕ И КВАЛИФИКАЦИЯ

И. Попчев. Изкуствен интелект в средното училище 19

Key Words: artificial intelligence; secondary schools; representation and knowledge processing; intelligent agents; semantic modeling; machine learning and emerging technologies.

Abstract. The article briefly introduces the published in 2019 by Izkustva Publishing House textbook "Artificial Intelligence. Solving Problems Through Search" with authors Stanimir Stoyanov, Todorka Glushkova and Yordan

Todorov – lecturers at the Plovdiv University “Paisii Hilendarski”. The textbook adopts an algorithmic approach and the basic methods are presented as abstract algorithms, with curious examples, interesting questions and biographies of researchers added for a clearer understanding. According to the specific conditions in each school and class certain topics and tasks could be included or respectively excluded. The following textbooks are: knowledge representation and processing, intelligent agents, semantic modeling and machine learning. It has been suggested that other scientists, professors and specialists will be involved in writing textbooks on emerging technologies.

С. Цолова. Резултати от апробиране на иновативна методология за обучение, подпомогната от ИКТ технологии 23

Key Words: *Approbation results; innovative methodology; David Kolb’s experiential learning cycle; Honey & Mumford learning types.*

Abstract. *The aim of this article is to present the results from a research, focused on the creation and evaluation of an innovative educational model, combining: Honey and Mumford learning styles, David Kolb experiential learning cycle and identification of the most effective innovative ICT technologies supporting the educational process for each learning style in the methodology of David Kolb’ experiential learning cycle. The presented in this article methodology was used as a basis for development of learning materials for university master degree course in the field of “Innovations and Innovation Management” and this gave opportunity for evaluation of the developed model: part of the course was implemented with traditional lectures without application of the presented here innovative model and later the same part of the course was implemented with application of the here presented innovative model and the specifically prepared for it learning materials. During the experiment the students filled in questionnaires in order to evaluate the used methods, learning materials and tasks in the course, the levels of acquired knowledge, level of involvement and satisfaction in the course. The results from this research presented in this article confirmed the successful application of the innovative methodology and the students’ preference towards educational process based on this methodology.*

К. Методиев, Д. Гочева. Разработване на автономни приложения за обучение 33

Key Words: *Standalone applications; industrial automation; teaching materials.*

Abstract. *Developing standalone applications to solve specific tasks is a convenient teaching tool. Standalone applications have been compiled from MATLAB code into executable files that can run outside of MATLAB for teaching materials in classes of Industrial Automation. Six standalone applications have been developed: four applications for the analysis of first- and second-order systems in time and frequency domains, one application to study time-delay systems and one to study systems with P, PI, PID controllers. The purpose of the present development is to share these applications with users who do not have MATLAB installed.*

С. Ставрев. FluorMat – обучителна платформа за интерактивна проекция 38

Key Words: *Game development; software architecture; serious games; virtual floor.*

Abstract. *Play is the oldest form of learning. Nowadays, there are numerous examples of video games that are developed for educational purposes. The hardware medium those games are played also varies – from traditional desktop PCs and consoles, through mobile devices, to virtual reality headsets. The latest additions to that list are virtual walls and floors. In this paper, we present FluorMat [16] – a virtual floor for both educational and entertainment games. Furthermore, we demonstrate and discuss several examples of serious games that are implemented on the top of that architecture. We also briefly explain which specific abilities each one of those games trains.*

КЛУБ САИ

Х. Белоев, А. Смрикаров, Ц. Василев, Ц. Георгиев, С. Смрикарова, А. Иванова, Г. Иванова,

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ГОДИШНИНА

Акад. Кирил Боянов на 85 години 50

Проф. д.т.н. д.х.к. Емил Николов на 70 години 52

Броят е издаден през 2020 г.

Издаването на този брой на списанието през 2020 г. е подпомогнато финансово от Фонд „Научни изследвания“ към Министерството на образованието и науката в България.