

# D-FE05

## Process Control and Automation 2

15:20-17:20  
Room : 4134

Chair : Chung Chan Soo (Soongsil Univ. )  
Co-Chair : Han Chang Soo (Hanyang Univ.)

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15:20 – 15:40

D-FE05-1

### Automatic Specification Generation System for Metal Products

Lee Yong Won , Seo Hee Suk  
(Sungkyunkwan Univ.)

In order to survive in today's world of intense market competition, one of the major goals in the manufacture industry is to supply new products in an optimal time frame. To achieve this goal, there is an essential need to shorten delivery time through higher productivity, less trial and error in the designing process, and increase in efficiency in designing new products. For these purposes, AutoCAD is generally used; however, there are two basic limitations. First, AutoCAD requires individual designing for each product, and two, the program does not grant statistical results. The aim of this paper is to present both design and development of Automatic Specification Generation System (ASGS) for metal products. ASGS is an applied designing system that reproduces drawing ...

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16:00 – 16:20

D-FE05-3

### Heuristic Task Allocation for Multiprocessor Controller Systems Considering Shared Resource Access

Ryou Myung Seon and Kwon Wook Hyun  
(Seoul National University)

This paper analyzes a blocking that is due to shared resource in multiprocessor system. A proposed analysis for shared resource suggests a scalable and amendable scheduling method about task allocation. An equation of shared resource blocking is proposed by a throughput at common bus and a ratio of throughput during time period, it is included a parameter of tasks scheduling. Using this equation, a new guideline for task allocation of multiprocessor is presented. Finally, in proposed system a model simulations for the proposed blocking model is given by a deterministic ratio of shared resource.

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15:40 – 16:00

D-FE05-2

### Development of a Inspection System for the Metal Mask Using a Vision System

Choi Kyungjin, Park Chongkug (Kyunghee Univ.), Lee Yonghyun  
(Kangnam Univ.), and Park Se Seung (Chosun Univ.)

In this paper, we develop the system which inspects the metal mask using area scan camera and belt type xy-table and introduce its inspection algorithm. The whole area of the metal mask is divided into several inspection blocks and the size of an inspection block is decided by FOV (Field of View). To compare with the camera image of each block, the reference image is made by gerber file. The rotation angle of the metal mask is calculated through the linear equation that is substituted with two end points of horizontal boundary of a specific hole in a camera image. To calculate the position error caused by belt type xy-table, hough-transform using the distances among the holes in two images is used. The center of the reference image is moved as much as the calculated position error to coincide with the camera image...

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16:20 – 16:40

D-FE05-4

### Design and Implementation of a Duplex Digital Excitation Control System for Power Plants

Nam ChaeHo , Nam JungHan , Choi JuneHyug , Baeg SeungYeob ,  
Cho ChangHo  
(Doosan Heavy Co. Ltd.)

This paper presents the duplex controller operated as master-slave for Self Excited Static Type excitation system and the results of operation for duplex digital excitation system. Software is made up of duplex multi-tasking control algorithm which is based on VxWorks (real-time OS), preprocessing algorithm for input-output signal, BSP & Device Driver for interfacing hardware and software, and OIS (Operator Interface Station) program, HMI S/W. Master controller and slave controller intercommunicate dominant data to minimize bump when controller switchover from master to slave occurs. Communication between master controller and slave controller is duplicated and communication between OIS and controller is duplicated. Hardware is made up of VME Bus based controller which is designed with PPC & I/O board ...

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