

„POLITEHNICA” UNIVERSITY OF TIMIȘOARA

**SYLLABUS**  
for the discipline:

**“RESEARCH TOPICS IN COMPUTER SYSTEMS”**

**FACULTY: AUTOMATION AND COMPUTERS**

**DOMAIN / SPECIALIZATION: COMPUTER SYSTEMS ENGINEERING**

**Year of studies: I (MASTER)**

**Semester: 1**

<b>Course instructor: associate professor Marius MARCU, PhD; associate professor Mihai MICEA, PhD</b>
<b>Applications instructor:</b>

<b>Number of hours/week/Evaluation/Credits</b>					
<b>Course</b>	<b>Seminar</b>	<b>Laboratory</b>	<b>Project</b>	<b>Evaluation</b>	<b>Credits</b>
<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Distributed</b>	<b>3</b>

**A. COURSE OBJECTIVES**

*To present research papers that have been influential in shaping the field of hardware computing systems. Students will learn to appreciate past and future developments in the field, contents and structure of a good research paper, make a critical analysis, a clear and consistent presentation, and participate actively in discussions. The papers will address topics that are essential both for researchers and practitioners. Thus, students will gain insight into the essence of the most widely used computer techniques, practices and paradigms. By understanding the foundations of current approaches, they will form solid reference points for taking future competent decisions on adopting novel techniques, practices or paradigms.*

**B. COURSE SUBJECTS**

*Advanced computing paradigms; hardware system architecture and design; hardware modeling and simulation; computer testing techniques; managing hardware development life cycle*

**C. APPLICATION SUBJECTS (laboratory, seminar, project)**

**D. REFERENCES**

*A.D. Kshemkalyani, M. Singhal: Distributed Computing - Principles, Algorithms and Systems, Cambridge 2008*

*H. El-Rewini, M. Abd-El-Barr: Advanced Computer Architecture and Parallel Processing, Wiley, 2005*

*D. L. Parnas, P. C. Clements, D. M. Weiss: The Modular Structure of Complex Systems, ICSE-7, 1984*

*Michael Jackson, Pamela Zave: Deriving Specifications from Requirements: An Example, ICSE-17, 1995*

## **E. EVALUATION PROCEDURE**

*Students will each present one paper and participate in the discussion of other papers, both activities contributing to the final grade.*

## **F. INTERNATIONAL COMPATIBILITY**

1. Special Topics in Computer Systems, course CS 260, Harvard University  
<http://www.eecs.harvard.edu/~mdw/course/cs260r/>
2. Advanced Topics in Computer Systems, course CS262, Berkeley University  
<http://www.cs.berkeley.edu/~brewer/cs262/>
3. Research Topics in Computer Networks, course CSE 430, University of Connecticut  
[http://www.cse.uconn.edu/cse\\_grad-courses.htm](http://www.cse.uconn.edu/cse_grad-courses.htm)

Date: 28.03.2007

**HEAD OF DEPARTMENT**

**COURSE INSTRUCTOR,**

**Prof. Dr. ing. Vladimir CREȚU**