Меѓународен Универзитет Визион - International Vision University
Universiteti Ndërkombëtar Vizion - Uluslararası Vizyon Üniversitesi

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SYLLABUS

COURSE NAME	COURSE CODE	SEMESTER	COURSE LOAD	ECTS
PARALLEL PROGRAMMING	**CEN-3009**	**4**	**180**	**6**

Prerequisite(s)	None

Course Language	Macedonian, Turkish, English
Course Type	Required
Course Level	First Cycle
Course Lecturer	
Course Assistants	
Classroom	
Extra Curricular Office Hours and Location	**Meeting:** **Consultancy:**

Course Objectives	Discovery of algorithms and programming techniques for the latest parallel platforms with shared memory and distributed memory. The student will recognize theoretical and practical (program) components.
Course Learning Outcomes	1-Learning the basic processes of software development and software development process models 2-Gain knowledge and skills in high quality and low cost software development 3-To have knowledge about the basics of software project management 4-To be able to implement all processes of software development 5-To gain awareness of software development in accordance with this discipline in professional life, knowing the importance of software engineering discipline 6-Gain the ability to adapt to changing professional conditions
Course Contents	Basic concepts. Introduction to parallel programming and platforms, design principles of parallel algorithms, competitive processes, basic communication processes and analytical modeling of parallel programs. Parallel programming that uses a shared address space platform (delegates: threads and OpenMP), as well as multi-core processors. Introduction to parallel programming using the messaging paradigm (MPI delegate). Parallel programming using multi-core GPUs (representative CUDA and OpenCL). Parallel algorithms and applications. Dynamic program. . PARALLEL programming in NET. Parallel programming languages with a global perspective. ZPL.

WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

Week	Subjects	Related Preparation
1	Introduction to Parallel programming	Related Chapters of Course Sources
2	Computing methodologies.	Related Chapters of Course Sources
3	Software and its engineering. Software notations and tools. General programming languages	Related Chapters of Course Sources
4	Introduction to CUDA	Related Chapters of Course Sources
5	Parallel Programming in CUDA C	Related Chapters of Course Sources
6	Thread Cooperation	Related Chapters of Course Sources
7	Mid-term Exam	Related Chapters of Course Sources
8	Constant Memory and Events	Related Chapters of Course Sources
9	Texture Memory	Related Chapters of Course Sources
10	Graphics Interoperability	Related Chapters of Course Sources
11	Atomics	Related Chapters of Course Sources
12	Streams	Related Chapters of Course Sources
13	CUDA C on Multiple GPUs	Related Chapters of Course Sources
14	Advanced Atomics	Related Chapters of Course Sources
15	Final Exam	Related Chapters of Course Sources

ECTS / WORKLOAD TABLE

Presentation / Seminar			
Hours for off-the-classroom study (Pre-study, practice)	14	3	42
Midterm Exam	1	12	12
Final examination	1	14	14
Total Work Load			
ECTS	**8**		

GENERAL PRINCIPLE RELATED WITH COURSE

Dear students,

In order to be included, learn and achieve full success that you deserve in the courses you need to come well prepared by reading the basic and secondary textbooks. We are expecting from you carefully to obey to the course hours, not to interrupt the lessons unless is very indispensable, to be an active participant on the courses, easily to communicate with the other professor and classmates, and to be interactive by participating to the class discussions. In case of unethical behavior both in courses or on exams, will be acting in framework of the relevant regulations. The attendance of the students will be checked in the beginning, in the middle or at the end of the lessons. Throughout the semester the students who attend to all lectures will be given 15 activity-attendance points in addition to their exam grades.

COMPULSORY LITERATURE		
No	**Name of the book**	**Author's Name, Publishing House, Publication Year**
1	Calvin Lyn, Lawrence Snyder	Principles of Parallel Programming Pearson Addison Wesley.2009
2	Maurice Herlihy, NirShavit	Programming GPUs O'Reilly Media 2012
3	Cuda by examples	Jason sanders and Edward Kandrot. Nvidia.

ADDITIONAL LITERATURE		
No	**Name of the book**	**Author's Name, Publishing House, Publication Year**
1	Peter Pacheco	Parallel Programming with MPI Morgan Kaufmann.1996
2		
3		

EVALUATION SYSTEM

Underlying the Assessment Studies	**NUMBER**	**PERCENTAGE OF GRADE**
Attendance/Participation	15	%10
Project / Event	1	%20
Mid-Term Exam	1	%35
Final Exam	1	%35
TOTAL	**17**	**%100**

ETHICAL CODE OF THE UNIVERSITY

In case of the students are cheating or attempt to cheat on exams, and in the case of not to reference the sources used in seminar studies, assignments, projects and presentations, in accordance to the legislations of the Ministry of Education and Science of Republic of Macedonia and International Vision University, will be applied the relevant disciplinary rules. International Vision University students are expected never to attempt to this kind of behavior.