Valid for academic year: 2019 - 2020

COURSE DESCRIPTION

1. Program details

University	"Lucian Blaga" University of Sibiu
Faculty	Engineering Faculty
Department	Department of Computer Science and Electrical and Electronics Engineering
Main field of study	Computer Engineering and Information Technology
Level of education	RESEARCH MASTER
Specialization	ADVANCED COMPUTING SYSTEMS

2. Course details

Course title	**Artificial Intelligence in Computer Games**			
Course code	Type of course	Year of study	Semester	Number of credits
mACS.202.SO	mandatory	1	2	7
Evaluation type	Type of course (FD=fundamental discipline.; DD=domain discipline; SD=specialized discipline; CD=complementary discipline)			
Exam	SD			
Course instructor	prof. eng. Daniel Volovici, PhD			
Seminar/lab/project instructor	prof. eng. Daniel Volovici, PhD			

3. Estimated time

Course duration in the curriculum – number of hours per week				
Lecture	Seminar	Lab	Project	Total
2	-	-	2	**4**
Course duration in the curriculum - Total of hours curriculum				
Lecture	Seminar	Lab	Project	Total ($NOAD_{sem}$)
28	-	-	28	**56**

Distribution of hours for individual study	No. hours
Individual study using course handbooks, bibliography and notes	30
Additional documentation in library and on specialized electronic platforms	14
Preparing seminars / labs, homework, essays and portfolios	10
Tutoring	2
Exam preparation	
Total hours for individual study ($NOSI_{sem}$)	56
Total hours per semester ($NOAD_{sem}$ + $NOSI_{sem}$)	**112**

4. Prerequisites (if applicable)

curriculum	Knowledge of artificial intelligence and machine learning
competencies	knowledge in some programing languages

5. Conditions (if applicable)

course materials	Active participation in classes, lecture + discussion, video-projector, whiteboard
sem/lab/project materials	Develop and support the planned labs.

6. Specific competences acquired

Professional competence	Applying some artificial intelligence advanced methods in computer games strategies. Develop some optimized heuristic methods. Advanced learning methods in multi-agents collaborative systems (swarm intelligence). Optimal mapping of concurrent applications on the distributed heterogenic systems.
Transversal competences	

7. Objectives (based on the specific grid for the accumulated competences)

General objective	Knowledge and understanding the general principles for the subject Knowledge and work adequately with notions Attainment capacity for integrate obtained knowledge from other classes Identity the main information sources Critical analysis form theoretical models, ideas and usually used broach. Capacity to realize a concrete project and a afferent report
Specific objectives	Stimulation moral attitude and fairness in evaluating and auto evaluating. Appreciation of work into a team and a work of each member from the team.

8. Contents

Course		No. hours
Course 1	Introduction. Games design. Concepts of games. Games clasification.	2
Course 2	Games structure	2
Course 3	Elements of mathematical theory of games.	2
Course 4	Games programming basis.	2
Course 5	3D games engines	2
Course 6	Artificial intelligence techniques for games programming	2
Course 7	Games implementation for Internet	2
Course 8	Scenography basics	2
Course 9	Commercial programs of games	2
Course 10	Game testing and repairing	2
Course 11	Case studies: computer chess	2
Course 12	Case studies: computer chess	2
Course 13	Case studies: backgammon	2
Course 14	Case studies: backgammon	2
	Total course hours:	**28**
Project		No. hours
	Each student chooses a subject on the area of the course and start doing research; On every week I coordinate their activities and direct them in a direction. At the end they must do a program to simulate something in the subject studied and to present to the	

	other students, the theory and the results.	
	Total lab hours:	**28**

Teaching methods

Lecture, problems, disquisition, drills, debates and conversation	Language of instruction	English

References

Recommended reading	David M. Bourg, Glenn Seeman – AI for Game Developers, publisher: O'Reilly, Julz 2004
	Mat Buckland – AI Techniques for Games, publisher: Premier Press, 2002, ISBN: 193184108X
	Mike McShaffry – Game Coding Complete, publisher: Paraglyph Press, 2003, ISBN: 1932111751
More references	Roger E. Pedersen – Game Design Foundations, publisher: Worlware Publishing, 2003, ISBN: 1556229739
	Tom Miller – Beginning 3D Game Programming, publisher: Sams Publishing, 2004
	Peter Walsh – Advanced 3D Game Programming with DirectX 9.0: publisher: Worldware Publishing, 2003, ISBN: 1556229682

9. Linking course content with expectations of the epistemic community representatives, professional associations and employers' representatives in the field related to the program

10. Evaluation

Type	Evaluation criteria	Evaluation methods	Percentage in final grade	Obs.*
Course	Semester exam	written	50	REP
	course participation		5%	nREP
	course report	oral/written	15%	nRFP
Lab	Lab activity	oral presentation	30	RFE
Minimum standard of performance				
50% result after summing weighted scores in column 4				

(*) REP – required for exam participation; nREP – not required for exam participation; RFE – required for final evaluation.

Date of completion: October 1, 2019

Date of approval in the Department:…….

	Position, title, first name, surname	Signature
Course instructor	Prof. Eng. Daniel VOLOVICI, PhD	
Head of department	Prof. Eng. Daniel VOLOVICI, PhD	

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