1.	Course Title	Computer audio, speech and music
2.	Code	F18L3W115
3.	Study program	Software engineering and information systems
4.	Study Program Organizer	Faculty of Computer Science and Engineering
5.	Degree (first, second, third cycle)	first cycle
6.	Academic year / semester 3 / winter / optional	7. ECTS credits 6
8.	Teacher	associate professor Andrea Kulakov, assistant professor Vangel Ajanovski
9.	Course enrollment prerequisites	Алгоритми и податочни структури

10. Course program goals (competencies):
 To acquire knowledge about key issues connected to analysis and generation of sound, speech and music.

11. Course program content:
 Physics of acoustic waves. Components of human speech. Speech systems and mathematical models. Speech analysis and synthesis. Speech recognition overview. Speaker recognition. Language identification. Speech tone. Prosody. Sound and melody mixing and editing. Spectra of musical instruments. Introduction to tonal music theory. Symbolic music representation (MIDI, MusicXML). Computer generated sounds and music. Music search.

12. Learning methods:
 Lectures using presentations, interactive lectures, exercises (using equipment and software packages), teamwork, case studies, invited guest lecturers, independent preparation and defense of a project assignment and seminar work.

13.	Total available time	6 ECTS x 30 hours = 180 hours
14.	Distribution of the available time	30 + 45 + 15 + 15 + 75 = 180 hours

15.	Teaching activity forms	15.1.	Lectures – theoretical teaching	30 hours

		15.2.	Exercises (laboratory, auditory), seminar papers, teamwork	45 hours
16.	Other activity forms	16.1.	Project Tasks	15 hours
		16.2.	Independent Learning Tasks	15 hours
		16.3.	Home learning	75 hours

17.	Assessment methodology	
17.1.	Tests	10 points
17.2.	Seminar paper/project (presentation: written and oral)	10 points
17.3.	Activity and learning	10 points
17.4.	Final exam	70 points

18.	Assessment criteria (points/grade)	up to 50 points	5 (five) (F)
		51 to 60 points	6 (six) (E)
		61 to 70 points	7 (seven) (D)
		71 to 80 points	8 (eight) (C)
		81 to 90 points	9 (nine) (B)
		91 to 100 points	10 (ten) (A)
19.	Course completion and final exam requirements	Realized activities 15.1 and 15.2	
20.	Teaching Language	Macedonian and English	
21.	Teaching quality evaluation method	Internal evaluation mechanisms and questionnaires	

22.	Course Material				
22.1.	Mandatory course material				

No.	Author	Title	Publisher	Year
1	Andy Farnell	Designing Sound	MIT Press	2010
2	Paul Taylor	Text-to-Speech Synthesis	Cambridge University Press	2009
3	Nick Collins	Introduction to Computer Music	Wiley	2010

22.2.	Additional course material

No.	Author	Title	Publisher	Year