Course Basic Information			
Academic Unit:	Faculty of Civil En	gineering	
Course title:	Virtual Cartographic Modeling		
Level:	Master		
Course Status:	Mandatory		
Year of Study:	Year 1; Semester 2.		
Number of Classes per Week:	2+2		
ECTS Credits:	6 ECTS		
Time /Location:	According to the timetable		
Teacher:	Assoc.Prof.Dr. Bashkim Idrizi		
Contact Details:	<u>bashkim.idrizi@u</u> <u>bashkim.idrizi@γ</u> +383 45 341098 +389 75 712998 (<u>ni-pr.edu</u> ahoo.com viber)	
Course Description:	The course Cartographic Virtual modeling offers knowledge about cartographic modeling and images, its specifics, their changes, and dynamic characteristics. Systematization of knowledge from cartography, computer graphics, psychology of perception and their summary aimed to achieve professional cartographic modeling. It also offers knowledge about cartographic models and modern technology in the cartography for virtual cartographic models processing. Having clear vision on technical skills for developing models for different needs and users. Introduction to 3D cartographic environment, 3D cartographic models and their main, secondary and complementary content.		
Course Goals:	This course aims the high levels of learning about the		
Expected Learning Outcomes:	 Definitions and concepts and virtual modeling Cartographic models design by using computer technology Developing models for different users and usages 3D cartographic models Advantages and disadvantages comparing with traditional techniques Data base developing, processing, compiling 3D maps, visual interpretation and animation of map models. 		
Student Workload (should be	in compliance wi	th student's Learn	ing Outcomes)
Activity	Hours	Day/ Week	Total
Theory/Lab Work/Exercises	2	15	30

Course title : Virtual Cartographic Modeling

	r			
Practical Work		2		
Consultations with the teacher		2	5	10
Field Work				
Test, seminar paper		5	4	20
Homework		1	10	10
Self-study (library or home)		2	10	20
Preparation for final exam		/	2	14
Assessment time (test, quiz, fir	nal	2	3	6
exam)			-	10
Projects, presentations, etc.		2	5	10
lotal				150
Teaching Methods:	-	- Lecture		
	-	- Discussion during lectures		
		- Exercises		
		- Work in aroun		
Assessment Methods		Prerequisite for a	ssessment more the	an 50% attendance in
		lactures and nosi	tive evaluation of co	minar paper by the
		lectures and posi		ninai papei by the
		ecturer.		200/
		Homework and o	ther commitments:	30%
		Regular attendan	ce: 10%	
		First colloquium:	15%	
	9	Second Colloquiu	m: 15%	
	I I	Final exam: 30%		
	-	Final exam: 30%		
	-	Final exam: 30% Total: 100%		
Primary Literature:	-	Final exam: 30% Total: 100%	er M. Gartner G. Mu	lti-scale
Primary Literature:	-	Final exam: 30% Total: 100% 1)Dollner J., Seste	er M., Gartner G. Mu	lti-scale
Primary Literature:	 - 	Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Avail Hildobran	er M., Gartner G. Mu of virtual 3D city moc d (1996) A Homogon	lti-scale lels. 2013
Primary Literature:	-	Final exam: 30% Total: 100% 1)Dollner J., Seste representations o 2) Axel Hildebran	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homoger	Iti-scale lels. 2013 lous Approach from
Primary Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen ; in Virtual Reality, Eu	lti-scale lels. 2013 lous Approach from lrographics'96
Primary Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial, Fraunhor	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen ; in Virtual Reality, Eu fer IGD, Germany	lti-scale lels. 2013 lous Approach from lrographics'96
Primary Literature:	- - - - - - - - - - - - - - - - - - -	Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen ; in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode	lti-scale lels. 2013 lous Approach from lrographics'96 eling in Educational
Primary Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homoger ; in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph	Iti-scale Iels. 2013 Ious Approach from Irographics'96 eling in Educational Iic Conference, 25-30
Primary Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen i in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On-	Iti-scale lels. 2013 lous Approach from lrographics'96 eling in Educational lic Conference, 25-30 line
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inter August 2013, Dre 1) Bandrova T., B	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen ; in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps	lti-scale lels. 2013 lous Approach from lrographics'96 eling in Educational lic Conference, 25-30 line – scale, accuracy,
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre 1) Bandrova T., B	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps	Iti-scale Iels. 2013 Ious Approach from Irographics'96 Ing in Educational Inc Conference, 25-30 Ine – scale, accuracy,
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte <u>August 2013, Dre</u> 1) Bandrova T., B level of details, 2	er M., Gartner G. Mu of virtual 3D city mod d (1996) A Homogen fin Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart	Iti-scale Jels. 2013 Jous Approach from Jourgraphics'96 eling in Educational Jic Conference, 25-30 <u>line</u> – scale, accuracy, ographic Conference,
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre 1) Bandrova T., B level of details, 2 25-30 August 201	er M., Gartner G. Mu of virtual 3D city mod d (1996) A Homogen in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart	lti-scale lels. 2013 ious Approach from irographics'96 eling in Educational ic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre 1) Bandrova T., B level of details, 2 25-30 August 201 2) https://www.i	er M., Gartner G. Mu of virtual 3D city mod d (1996) A Homogen i in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart 3, Dresden, German	lti-scale lels. 2013 lous Approach from lrographics'96 eling in Educational lic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line remote-sens-spatial-
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre 1) Bandrova T., B level of details, 2 25-30 August 201 2) <u>https://www.interf-sci.net/XL-2-V</u>	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart 3, Dresden, German nt-arch-photogramm V2/73/2013/isprsarc	lti-scale lels. 2013 ious Approach from irographics'96 eling in Educational ic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line i-remote-sens-spatial- hives-XL-2-W2-73-
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre 1) Bandrova T., B level of details, 2 25-30 August 201 2) <u>https://www.in inf-sci.net/XL-2-V</u> 2013.pdf	er M., Gartner G. Mu of virtual 3D city mod d (1996) A Homogen in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart I.3, Dresden, German nt-arch-photogramm V2/73/2013/isprsarc	lti-scale lels. 2013 nous Approach from arographics'96 eling in Educational tic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line <u>n-remote-sens-spatial-</u> <u>hives-XL-2-W2-73-</u>
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre 1) Bandrova T., B level of details, 2 25-30 August 201 2) <u>https://www.intersci.net/XL-2-V</u> 2013.pdf 3)	er M., Gartner G. Mu of virtual 3D city mod d (1996) A Homogen in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart .3, Dresden, German <u>nt-arch-photogramm</u> <u>V2/73/2013/isprsarc</u>	lti-scale lels. 2013 nous Approach from irographics'96 eling in Educational nic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line n-remote-sens-spatial- hives-XL-2-W2-73-
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre 1) Bandrova T., B level of details, 2 25-30 August 201 2) <u>https://www.in inf-sci.net/XL-2-V</u> 2013.pdf 3)	er M., Gartner G. Mu of virtual 3D city mod d (1996) A Homogen i in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart .3, Dresden, German <u>nt-arch-photogramm</u> <u>V2/73/2013/isprsarc</u>	lti-scale lels. 2013 ious Approach from irographics'96 eling in Educational ic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line <u>hremote-sens-spatial-</u> hives-XL-2-W2-73-
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inter August 2013, Drev 1) Bandrova T., B level of details, 2 25-30 August 201 2) <u>https://www.initescinet/XL-2-V</u> 2013.pdf 3) https://www.scinet/ 4)	er M., Gartner G. Mu of virtual 3D city mod d (1996) A Homogen ; in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart 13, Dresden, German nt-arch-photogramm V2/73/2013/isprsarc	lti-scale lels. 2013 ious Approach from irographics'96 eling in Educational ic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line hives-XL-2-W2-73-
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inter August 2013, Dre 1) Bandrova T., B level of details, 2 25-30 August 2013 2) <u>https://www.inites.inet/XL-2-V</u> 2013.pdf 3) https://www.scir 4)	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen ; in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart 3, Dresden, German <u>ht-arch-photogramm</u> <u>V2/73/2013/isprsarc</u> <u>p.org/pdf/ijg201104</u>	lti-scale lels. 2013 ious Approach from irographics'96 eling in Educational ic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line i-remote-sens-spatial- hives-XL-2-W2-73-
Primary Literature: Additional Literature:		Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inte August 2013, Dre 1) Bandrova T., B level of details, 2 25-30 August 201 2) <u>https://www.inif-sci.net/XL-2-V</u> 2013.pdf 3) <u>https://www.scir</u> 4)	er M., Gartner G. Mu of virtual 3D city moo d (1996) A Homogen ; in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart 3, Dresden, German <u>nt-arch-photogramm</u> V2/73/2013/isprsarc <u>p.org/pdf/ijg201104</u>	lti-scale lels. 2013 nous Approach from arographics'96 eling in Educational ic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line <u>n-remote-sens-spatial- hives-XL-2-W2-73-</u> 00009_81009234.pdf /article/view/33086
Primary Literature: Additional Literature: Designed teaching plan	Title of the	Final exam: 30% Total: 100% 1)Dollner J., Sester representations of 2) Axel Hildebran Image Processing Tutorial,Fraunhor 3) Bandrova T., 3 Process, 26 th Inter August 2013, Drev 1) Bandrova T., B level of details, 2 25-30 August 201 2) https://www.initionf-sci.net/XL-2-V 2013.pdf 3) https://www.scirr 4) https://www.ajol	er M., Gartner G. Mu of virtual 3D city mod d (1996) A Homogen i in Virtual Reality, Eu fer IGD, Germany D Cartographic Mode rnational Cartograph sden, Germany, On- onchev St., 3D maps 6 th International Cart 13, Dresden, German <u>nt-arch-photogramm</u> V2/73/2013/isprsarc <u>p.org/pdf/ijg201104</u>	lti-scale lels. 2013 hous Approach from irographics'96 eling in Educational hic Conference, 25-30 line – scale, accuracy, ographic Conference, y, On-line hives-XL-2-W2-73- 00009_81009234.pdf /article/view/33086

Week 2:	Cartographic model design
Week 3:	Modern technology in virtual modelling
Week 4:	Multi-purpose model developing
Week 5:	Development of advanced virtual models
Week 6:	3D cartographic models
Week 7:	Advantages comparing with traditional techniques
Week 8:	First students valuation
Week 9:	Development of databases for virtual modelling
Week 10:	3D maps and virtual globe
Week 11:	BIM – Building Information Modelling
Week 12:	Graphical presentation and animation in virtual modelling
Week 13:	Virtual modeling application in natural disaster analysis
Week 14:	Practical demonstration
Week 15:	Second Students Valuation

Academic Policies and Code of Conduct

We start and finish class on time.

Tools used during class must be cleaned and stored away at the end of class.

Mobile/smart phones, and other electronic devices (e.g. iPods) must be turned off (or on vibrate) and hidden from view during class time.

Laptop and tablet computers are allowed for quiet use only; other activities such as checking personal e-mail or browsing the Internet are prohibited.

Note | If a student has more than 3 class assignements evaluated below 50% he/she loses the right on taking the final exam. Evaluation is done from 0-100 %.