Course title:	TECHNICAL STANDARDIZATION AND COST ESTIMATION
Course title in Polish:	NORMOWANIE TECHNICZNE I KOSZTORYSOWANIE
Course for discipline:	Civil Engineering, Geodesy and Transportation

Semester:	7	**Status of course:**	faculty	**Language:**	english
Academic year:		**Catalog number:**			

Coordinator of course:	dr hab. inż. Mariusz Żółtowski, prof.SGGW
Lecturer od course:	dr hab. inż. Mariusz Żółtowski, prof.SGGW
Executing unit:	Institute of Civil Engineering, Department of Construction Engineering
Ordering unit:	Doctoral School SGGW
Assumptions, goals and description of the course:	Analysis and cost accounting in construction. Methods of evaluating the efficiency of construction projects. Methods and basics of determining the cost of design work and the cost of construction works. Methods and basics of Costing of construction works Specifics of the construction industry. Cost, input, expense. Classification of costs. Income. Creation of the financial result of the enterprise. Profitability threshold. Cost and revenue accounting of the enterprise Construction company. Budgeting and cost control. Costing calculation in the construction industry. Types of cost estimates. Methods of cost estimating. Basics of cost estimating. VAT. Calculation of equipment labor costs, labor costs, material purchase costs, indirect costs and profit in cost estimates. Detailed costing. Operation of cost estimating programs. Balance sheet of the enterprise. Fixed assets. Depreciation and amortization. Financial statements. Investment efficiency account - simple and discounted methods. Sources of enterprise financing. Cost of capital. Optimization of capital structure.
Didactic form, number of hours:	Lecture 5h and project 5h
Teaching methods:	Multimedia lecture, calculation exercises, use of NORMA Expert software
Limit of people in the group:	30

Learning outcomes

KNOWLEDGE - the graduate knows and understands:	**SKILLS - the graduate is able to:**	**COMPETENCES - the graduate is ready to:**
To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	Critically evaluate the achievments in the field/discipline represented
Major general development trends in the field/discipline		Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect
		Support the ethos of scientific circles and conduct independent research

The method of verification of learning outcomes:	A credit colloquium on the lecture part and passing on time the project done in the project class.
Form of documentation of achieved learning outcomes:	Writen colloquium, and project done in the project class.
Elements and weights of the final grade:	Colloquium - 50%, Project - 50%
Place of the course:	

Basic and supplementary literature

Zhang, Y. F., Fuh, J. Y. H., and Chan, W. T., 1996, “Feature-Based CostEstimation for Packaging Products Using Neural Networks,” Comput Ind., 32,pp. 95–113. Ben-Arieh, D., and Qian, L., 2003, “Activity-Based Cost Management forDesign and Development Stage,” Int. J. Prod. Econ., 83, pp. 169–183. Shehab, E. M., and Abdalla, H. S., 2001, “Manufacturing Cost Modeling forConcurrent Product Development,” Rob. Comput.-Integr. Manufact., 17.4,pp. 341–353. Shehab, E. M., and Abdalla, H. S., 2002, “A Design to Cost System forInnovative Product Development,” Proc. Inst. Mech. Eng., Part B, 216.7, pp.999–1019. Cavalieri, S., Maccarrone, P., and Pinto, R., 2004, “Parametric Vs NeuralNetwork Models for the Estimation of Production Costs: A Case Study in theAutomotive Industry,” Int. J. Prod. Econ., 91.2, pp. 165–177. Rehman, S., and Guenov, M. D., 1998, “A Methodology for Modeling Manu-facturing Costs at Conceptual Design,” Comput. Ind. Eng., 35.3–4, pp. 623–626. Li-hua, X., and Yun-feng, W., 2004, “Research on Rapid Cost EvaluationBased on Case-Based Reasoning,” Integr. Manuf. Syst., 10.12, pp. 1605–1609. Ficko, M., Drstvensek, I., Brezocnik, M., Balic, J., and Vaupotic, B., 2005,“Prediction of Total Manufacturing Costs for Stamping Tool on the Basis ofCAD-Model of Finished Product,” J. Mater. Process. Technol., 164–165, pp.1327–1335.Balarman, V., and Vattam, S. S., 1998, “Finding Common Ground in Case-Based Systems,” Knowledge Based Computer Systems, Proceedings of theInternational Conference: KBCS’98, National Center for Software Technol-ogy, pp. 25–37.

Comments:	non

Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	30h

Leraning outcomes reference to the second degree characteristics of the National Qualification Framework (level 8) covering doctoral competences:		
Symbol:	**Learning outcomes:**	**8 level NQF**
SD1_KW01	To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues	P8S_WG
SD1_KW02	Major general development trends in the field/discipline	P8S_WG
SD1_KU05	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	P8S_UW
SD1_KK01	Critically evaluate the achievments in the field/discipline represented	P8S_KK
SD1_KK03	Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect	P8S_KK
SD1_KK08	Support the ethos of scientific circles and conduct independent research	P8S_KR