

E – Charakteristika studijního předmětu/Subject Specification					
Název studijního předmětu / Subject title	Computational Intelligence / Artificial Neural Networks				
Typ předmětu / Subject type	Obligatory selectable		dopor. ročník / semester/ recommended year / semester	2/3	
Rozsah studijního předmětu / Study load in hours and credits		hod. za týden / weekly load	2+3 h	Kreditů / Credits	5
Jiný způsob vyjádření rozsahu / Other expression of study load	15 weeks (2 hours of lectures, 2 hours of seminar - 1 hour of practical course on PC is included)				
Způsob zakončení / Assessment	Exam		Forma výuky / Form of teaching	Full-time course	
Další požadavky na studenta / Other demands on students					
Basic knowledge in natural science					
Vyučující / Lecturer					
Wolfgang Kästner					
Stručná anotace předmětu / Subject annotation					
<p>The aim is to impart basic as well as consolidated knowledge about computational intelligence especially artificial neural networks and their application for the modelling of complex processes.</p> <p>Main topics are:</p> <ul style="list-style-type: none">- Foundations of CI, ANN- Application of ANN in classification and modelling- Modelling of complex processes using Multilayer Perzeptron (design, architecture, training, test, recall, example of demonstration, practical realisation, software tools)- verification and validation of model, analysis of sensitivity- requirements for application to model dynamic processes- application of developed algorithms <p>The students get basic informations about the foundations of artificial neural networks with the focus on the modelling of complex processes using Multilayer Perzeptron. Seminar and practical training on PC consolidate the ability to develop and apply the algorithms.</p>					
Informace ke kombinované nebo distanční formě / Information for students in external form of study					
Rozsah konzultací (soustředění) / Consultations, study meetings	2 x 3 h		hodin za týden / hours per week		
Rozsah a obsahové zaměření individuálních prací studentů a způsob kontroly / Individual student work – type, load, content and way of checking					
Assignment of tasks and check of solution in seminar.					
Studijní literatura a studijní pomůcky / Reading list and study utilities					
Brause, R.: Neuronale Netze, Teubner Verlag, 1995 Computational Intelligence Künstliche Neuronale Netze, Begriffe und Definitionen, VDI/VDE 3550, Blatt 1, September 2001 Data Engine: Überblick und Benutzerdokumentation, MIT GmbH, Aachen, 2001 Data Engine: Tutorials und Grundlagen, MIT GmbH, Aachen, 2001 Nauck, D.; et. al.: Neuronale Netze und Fuzzy-Systeme, Vieweg Verlag, 1994 Ritter, H.; et. al.: Neuronale Netze. 2.Auflage, Addison-Wesley, 1991 Seraphin, M.: Neuronale Netze und Fuzzy-Logik, Franzis, 1994 Zell, A.: Simulation Neuronaler Netze, Addison-Wesley, 1994					
Access to standards at library and internet.					