Module description (syllabus): Inżynieria finansowa i zarządzanie ryzykiem kursowym

Module title:	**Inżynieria finansowa i zarządzanie ryzykiem kursowym**	**ECTS**	**4**
Module title translation:	Financial engineering and foreign exchange risk management		
Module for study direction:	**Ekonomia**		

Module language: **angielski**		Study level: **2**
Study cycle: **stacjonarne**	Module status: **kierunkowy - do wyboru**	Semester number: **3** **semestr zimowy**
Academic Year from which module description is valid :	**2019/2020**	Catalogue number: **EKR-E-2S-3-23-KF-2019-EN**

Person in charge of the module:	**Katarzyna Czech, dr**
Teachers responsible for classes:	
Unit responsible for the module:	**Katedra Ekonometrii i Statystyki**
Faculty in charge:	**Wydział Ekonomiczny**
Objectives of the module:	a. Analyzing international financial market, especially foreign exchange market, b. Demonstrating knowledge of forward and futures contracts terminology and principles and knowledge of vanilla and exotic option contracts' terminology and principles, and drawing payoff diagrams c. Framing and formulating exchange rate risk management problems and building different currency hedging strategies based on derivative instruments d. Pricing derivatives instruments (forward, futures and option contracts) **Lectures** The course provides both theoretical and practical knowledge of financial engineering and foreign exchange risk management. Course content: introduction to international financial markets and foreign exchange market, covered and uncovered interest parity theory, forward and futures contract valuation, option pricing models (binomial and Black-Scholes-Merton model), foreign exchange risk measurement, application of derivatives instrument in hedging currency risk, exotic options, options' strategies, application of options' risk reversal implied volatility, limitation of financial engineering theory in practice: forward premium anomaly, profitability of carry trade strategies. **Classes** Students will apply different models to price derivatives instruments in various asset classes including shares, commodities and currency pairs. Computer classes cover the most important concepts and products applied in managing foreign exchange risk. Students will build hedging strategies based on both forward and option contracts. Moreover, the aim of computer classes is to improve students' understanding of foreign exchange markets' phenomenon such as forward premium anomaly, carry trade strategies and currency crisis. The course helps to understand the "rocket science" behind financial engineering but also uncovers the limitation of the theory in practice.
Teaching forms and number of hours:	a. lectures - no of hours: full time study: 10, part-time study. 0 b. classes - no of hours: full time study: 20, part-time study. 0
Teaching methods:	discussion, research project, consultation with the lecturer, individual student projects
Initial requirements and formal prerequisities:	Mathematics, Finance

Learning outcomes:	**Knowledge - knows and understands:** 1. Students can apply different models to price derivatives instruments in various asset classes including shares, commodities and exchange rates 2. Students can build hedging strategies based on both forward and option contracts	**Skills - can:** 3. Studens can frame research problem and choose accurate methods to solve it 4. Students can find effective strategies to hedge against currency risk	**Competences - is ready for:** 5. Students are able to verbalize ideas, listen to one another and present their project's results
Assessement methods:	evaluation of the presentation during the class (effects: 5), evaluation of the work done as part of the student's own work (effects: 1,2), assessment of the project work (effects: 3,4)		
Formal documentation of the learning outcome:			

Elements of the final grade and their weights:	evaluation of the presentation during the class - 10%, evaluation of the work done as part of the student's own work - 55%, assessment of the project work - 35%
Place of teaching:	computer lab

Teaching materials (obligatory and additional):

1. Salih Neftci, Principles of financial engineering, Elsevier, 2008
2. John Hull, Options, futures, and other derivatives, Pearson Education 2015
3. Brian Coyle, Hedging currency exposures. Currency risk management, Chartered Institute of Banker, 2000
4. Giulia Di Nunno, Bernt Øksendal, Advanced Mathematical Methods for Finance, Springer, 2011
5. David Ruppert, Statistics and Data Analysis for Financial Engineering, Springer, 2011
6. Peijie Wang, The Economics of Foreign Exchange and Global Finance, Springer, 2009
7. Christian Ullrich, Forecasting and Hedging in the Foreign Exchange Markets, Springer, 2009.|

Remarks:
Semester: winter (maximum number of students per semester: 16-18)-+, ver-lw

Quantitative indicators describing the module:	
Estimated total number of student work hours (contact and own work) necessary to achieve the learning outcomes assumed for the module - on this basis, complete the ECTS field:	**100/0**
The total number of ECTS points which the student receives in module requiring direct participation of academic teachers or other persons:	**1.6/0 ECTS**

Table of compliance of the directional learning outcomes with the effects of the module			
Outcome category	Learning outcomes for module:	Reference to effects for the study program for the direction of study	The impact of classes on the directional effect*)
Knowledge	1. Students can apply different models to price derivatives instruments in various asset classes including shares, commodities and exchange rates	EK2_KW03	2
	2. Students can build hedging strategies based on both forward and option contracts	EK2_KW03, EK2_KW04	3
Skills	3. Studens can frame research problem and choose accurate methods to solve it	EK2_KU02, EK2_KU03	2
	4. Students can find effective strategies to hedge against currency risk	EK2_KU02	2
Competences	5. Students are able to verbalize ideas, listen to one another and present their project's results	EK2_KK01	2

*) 3 - advanced and detailed, 2 - significant, 1 - basic