POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Fundamentals of Econometrics

Course

Field of study	Year/Semester
Logistics	3/6
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
First-cycle studies	Polish
Form of study	Requirements
full-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15		
Tutorials	Projects/seminars	
15		

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

Ph.D. ,Tomasz Brzęczek

Mail to: tomasz.brzeczek@put.poznan.pl

Phone: 61 665 33 92

Faculty of Engineering Management

ul. J .Rychlewskiego 2, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Student knows basics of statistics.

Course objective

To teach student knowledge about estimation of economic relations. To create skills of econometric modelling and learn how to use it in practice.

Course-related learning outcomes

Knowledge

1. Student knows terms of econometric linear model, linearisable model, goodness of fit, significancy and typical implementations of econometric models in logistics [P6S_WG_04]

POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

2. Student knows terms of forecasting theory (forecast, error, feasibility and accuracy) and terms of econometric model, goodness of fit and significancy [P6S_WG_04]

3. Student knows ordinary and general least squares methods (OLS and GLS) of data analysis [P6S_WG_04]

4. Student knows time series components: sample average, moving average, random component [P6S_WG_04]

5. Student knows methods of seasonal components and factors estimation [P6S_WK_08]

6. Student knows forecasting rules and forecast verification, and typical implementations in logistics. Knows how calculate safety stock quantity to ensure given level of demand quantity satisfaction [P6S_WK_08]

Skills

1. Student can estimate a model using OLS and GLS methods also with usage of Excel and GRETL [P6S_UW_02]

2. Student assess statistical significancy and the fitness of model to data [P6S_UW_03]

3. Student estimates error of forecast ex ante and ex post [P6S_UO_02]

4. Student can use econometric modeling and forecasting in logistics with appropriate statistical methods, taking into account new advances in economics and logistics [P6S_UO_02; P6S_UU_01]

Social competences

1. Student is concious about forecasting role and meaning in logistics [P6S_KO_01-02]

2. Student is ready to work in forecasting field projects and teams [P6S_KR_02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Partial and final grades at lecture based on mid-semester test including closed questions answering and short tasks solving. Each final grade has pass threshold of 60% of all complementing points.

Tutorial: Partial grade at tutorial: 1. tasks of model fitness to data measuring, forecasting errors calculus and of data deflating in Excel and 2. analysing case of modeling and forecasting of time series including seasonal effects. Final grade (pass) results from sum of points from activities (1-2).

Programme content

Lecture: Econometrics and its terms. Econometric model concept and usage. Regression and correlation. Estimation and veryfication of econometric model, ordinary least squares method, determination coefficient, multiple regression. Forecasting theory. Terms, forecast, simulation, forecasting process, error, accuracy. Forecasting software. Functionality and examples. Analysis of time series and choice of

POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

an appropriate model. Trends. Calculus of safe stock quantity to ensure a given level of demand satisfied.

Tutorial: Analyzes and tasks with the use of theories and methods discussed in the lecture.

Teaching methods

Lecture: case study and theory review.

Tutorial: case study, project task.

Bibliography

Basic

1. Cieślak M. (red.), Prognozowanie gospodarcze. Metody i zastosowania, Wydawnictwo Naukowe PWN, Warszawa 2002.

2. Dittmann P., Prognozowanie w przedsiębiorstwie, PWE, Warszawa 2003.

3. Kufel T., Ekonometria. Rozwiązywanie problemów z wykorzystaniem programu GRETL, Wydawnictwo Naukowe PWN, Warszawa 2011.

4. Witkowska D., Podstawy ekonometrii i teorii prognozowania, Oficyna Ekonomiczna, Kraków 2006.

Additional

1. Borkowski B., Dudek H., Szczesny W., Ekonometria. Wybrane zagadnienia, Wydawnictwo Naukowe PWN, Warszawa 2004.

2. Brzęczek T., Ocena efektów dywersyfikacji portfela produktowego w zakresie ryzyka sprzedaży całkowitej i trafności jej prognoz, Ekonometria I (55) 2017, s. 112-124.

3. Brzęczek T., Sales forecasting and newsboy model techniques integrated for merchandise planning and business risk optimization [w:] Steglich M., Mueller Ch., Neumann G., Walter M. (eds.), Communications of ECMS 34(1), 2020, s. 111-115 (https://doi.org/10.7148/2020-0111).

4. Kufel T., Ekonometryczna analiza cykliczności procesów gospodarczych o wysokiej częstotliwości obserwowania, WN UMK w Toruniu, Toruń 2010.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for tutorials, preparation for tests) [1]	20	1,0

---

[1] delete or add other activities as appropriate