Optimal Control of Dynamic Economic Models: An Elementary Introduction

Unit Title	Optimal Control of Dynamic Economic Models: An Elementary Introduction
Level of Study	2
Credit Value	5	**ECTS Value**	2.5
Home Department	Information Systems and Mathematical Methods in Economics
Home Faculty	Faculty of Economics
Unit Co-ordinator	Prof. Vladimir P. Maksimov
Key Words	Control problems, dynamic models, optimization
Brief Summary	Students will work on control problems as applied to mathematical models in Economics and become familiar with the basic ideas and notions of the optimal control theory. This is an investigative unit that enables students to synthesise theoretical knowledge with some practical application and supports the development of professional skills.
Indicative Content	A brief sketh of the history The simplest problem of the calculus of variations: necessary conditions for extremum, Euler's boundary value problem. Applications. The Pontryagin maximum principle for the optimal control problem with a free terminal state. Applications. Sufficient conditions of optimality An optimal control problem for a nonlinear model of one-product economy Full time students will conduct this as a team project. Students may be permitted to complete an individual project.