## Content

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ECON303 | Growth Theories | 5 | 3 | 0 | 0 | 3 | 5 |

## Prerequisites

Admission Requirements

| Language of Instruction |  |
| :--- | :--- |
| Course Type | Compulsory |
| Course Level | Bachelor Degree |
| Objective | This course aims to lecture principal growth models, and is an introduction to the methods for studying <br> simple deterministic dynamical systems. |
| Content | Introduction to keynesian and neoclassical growth theories. |
| References | Barro et Sala-i Martin, Economic Growth. <br> Lecaillon, Macro-dynamique : Ia croissance. <br> Chiang, Fundamental methods of mathematical economics. <br> Sydsaeter, Hammond, Essential mathematics for economic analysis. <br> Sydsaeter, Hammond, Mathematics for economic analysis. <br> Simon, Blume, Mathematical economics. |

## Theory Topics

| Week | Weekly Contents |
| :--- | :--- |
| 1 | Discrete and continuous growth rate. Fundamental knowledge on simple difference equations and differential equations. <br> Interst rate and optimal timing problems. <br> 2 |
| 3 | Harrod model for good market in discrete and continuous time. Existence, unicity and stability of equilibrium. |
| 4 | Neoclassical production function. Concavity and homogeneity. Inada conditions. |
| 5 | Neoclassical model. Simultaneous determination of quantities and prices. Existence of equilibrium growth rate. |
| 6 | Neoclassical model. Existence, unicity and stability of equilibrium. |
| 7 | Comparative dynamics. Golden rule path. |
| 8 | Midterm. |
| 9 | Exogenous technical progress and its classifications. |
| 10 | Neoclassical model with technical progress. Existence of equilibrium growth rate. Existence, unicity and stability of <br> equilibrium. <br> 11 |
| 12 | Comparative dynamics with technical progress. Stylised facts of Kaldor. |
| 13 | The work of Mankiw, Romer, Weil. The critic of Paul Romer and the necessity of endogenous technical progress. |
| 14 | Endogenous growth of ancient generation: learning by doing I-II. |

