

COURSE ID SHEET



Course No. **5290**

NTUA

Semester: **8** Core **X** Elective Specialization

Title: **DESIGN II**

Aim:

The aim of this course is to:

- develop skills and knowledge in advanced topics of chemical process design.
- familiarize with process synthesis and a model-based analysis of integrated processes.
- familiarize with the use of superstructure optimization and software to support decisions.
- promote creative and innovating thinking in the formulation of design solutions.

Content:

Advanced topics in the selection of chemical reactors.
 Advanced topics in separation, introduction and use of Residue Curve Maps.
 Production scheduling and planning of batch processes.
 Retrofitting applications.
 Model-based synthesis and superstructure optimization:

- Basic concepts and technology.
- Synthesis of utility and energy integration networks.
- Integrated separation and separation sequencing.
- State-task networks for scheduling and planning.
- Water and wastewater network with reuse, regeneration and recycle.

Hours per semester:	LECTURES	85	EXERCISES		LABORATORY	30	HOME-WORK	60	TOTAL HOURS: 175
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Student performance/evaluation:

The evaluation of the students will be done through:

- A Final (written) Examination (FE), and
- A mandatory Design Project (DP).

The Final Grade results as follows: Final Grade = 0.5 x (FE) + 0.5 x (DP)