

COURSE ID SHEET



Course No.	5177		NTUA						
Semester:	7	Core	X	Elective		Specialization			
Title:	DESIGN I								
Aim:	Build fundamental knowledge and skills in chemical process design. Understand and apply process integration principles to build efficiency for the chemical plant. Familiarize with process flow sheeting and software to develop and validate functional plants. Build transferable skills to submit technical reports, communicate results and present effectively.								
Content:	- Basic concepts and principles in chemical process design. - Evaluation of design options. - Selection of chemical reactions and reactors. - Selection of separation stages and separators. - Integration of reaction and separation, evaluation of trade-offs, design of recycle structures and purge streams. - Design for safety. - Process integration. - Introduction to targeting technology and the Pinch method. - Targeting CAPEX and their trade-offs with the energy use. - Selection and integration of utilities. - Integration of engines and heat pumps. - Integration of chemical reactors. - Integration of distillation and evaporation. - Total Site integration.								
Hours per semester:	LECTURES	120	EXERCISES	-	LABORATORY	30	HOME-WORK	60	TOTAL HOURS: 210
Student performance/evaluation:	The evaluation of the students will be done through: - A Final (written) Examination (FE), and - A Design Project (DP). The Final Grade results as follows: Final Grade = 0.5 x (FE) + 0.5 x (DP)								