

رمز المادة	نوع المادة	الساعات الأسبوعية			السنة الدراسية	اسم المادة
	مساعدة	الوحدات	ع	ن	الرابعة	النمذجة والمحاكاة Modeling and Simulation
		٤	٢	١	٣٠ أسبوع	

Week	Syllabus
1 st , 2 nd	Introduction to process modeling and simulation, tools of simulation, approaches of simulation, planning of calculation in a plant simulation.
3 rd	Modeling of permanent magnet DC motor (PMDC).
4 th	Modeling of permanent magnet DC motor (PMDC) with PID controller.
5 th	Modeling of separately excited DC motor.
6 th	Modeling of separately excited DC motor with PID controller.
7 th	Modeling of shunt DC motor.
8 th	Modeling of shunt DC motor with PID controller.
9 th	Modeling of series DC motor.
10 th	Modeling of series DC motor with PID controller.
11 th	Modeling of three-winding distribution transformer.
12 th , 13 th , 14 th , 15 th	Speed control of multiple (MASTER/SLAVES) DC motor using PID controller.
16 th	Simulation of power in single-phase circuits (average, reactive, and complex powers)
17 th	Simulation of power factor correction.
18 th	Simulation of short transmission line model.
19 th	Simulation of medium transmission line model.
20 th	Simulation of long transmission line model.
21 st , 22 nd , 23 rd , 24 th , 25 th	Basic generator control loops: modeling of Load frequency control (LFC).
26 th , 27 th , 28 th , 29 th , 30 th	Basic generator control loops: modeling of Automatic Generation Control (AGC).