COURSE TRAINING PROGRAM FORM

Course Name	Code	Regular Semester	ECTS Credits	Credits	Lecture	4
					Application	0
Introduction to Electronics	*014 2022*	*2*	*6*	*4*	Laboratory (Hour/Week)	0

Compulsory or Elective	*Compulsory*
Instructor	*Prof. Dr. Atilla ATAMAN*
Course Contents	*Classifying of electronic devices, motion of electrons in vacuum, pure and doped semiconductors, carrier transport, current and continuity equations, pn junction, MOS diode, NMOS and PMOS transistors, Bipolar transistors, SPICE model of electronic devices and applications.*
Course Objectives	*This course aims to give an introduction to vacuum and semiconductor electronic devices their V-I characteristics simulations models and ground applications*
Course Outcomes (The knowledge and the skills that the student will gain at the end of the course)	*The students getting the knowledge of,* • *The operation of electronic devices* • *Modeling of semiconductor components* • *Simulation and application of electronics devices*
Textbook	*Elektronik Devreler, Duran Leblebici, Seç yayın dağıtım,1997*
Additional References	*a) Kanaan Kano* *Semiconductor Devices* *Prentice-Hall 1998* *ISBN 0-02-361938-4* *b) David L. Pulfrey: N Garry Tarr* *Introduction to Microelectronics Devices* *Prentice-Hall 1989* *ISBN 0-13-488107-9*

Prerequisite Courses	*-----*
Prerequisite Subjects	*Semiconductor Physics*
Homework/Project	*3 Homeworks*
Laboratory	*------*
Computer Applications	*PSPICE*
Additional Practices	

Course Evaluation Criteria

	Number	Effective Proportion %
Midterm Exams	*2*	*%40*
Quiz	*--*	
Homework	*3*	*%20*
Term Projects	*-----*	
Term Papers	*----*	
Laboratory	*----*	
Other	*-----*	
Final Exam	*1*	*%40*

WEEKLY COURSE PLAN

Week	Subject
1	*What is electronics? Electronic Industry today. Classifying of electronic devices.*
2	*Charged particles in electric and magnetic fields. Motion of electrons in vacuum.*
3	*Electron tubes and its characteristics.*
4	*Pure and doped semiconductors.*
5	*Carrier transport, current and continuity equations.*
6	*pn junction.*
7	*MOS diode.*
8	*NMOS and PMOS transistors.*
9	*Bipolar transistors.*
10	*SPICE model of electronic devices.*
11	*Circuit model of MOS*
12	*Conduction mechanism in transistors*
13	*Ebers-Moll model*
14	*Small signal equivalent circuits of transistors*
15	*Applications.*

Course Outcomes

	The objective knowledge and abilities earned by the student with the Electronics and Communications Engineering Department Program	**1**	**2**	**3**
1	Ability to apply knowledge of natural science and engineering			X
2	Ability to design and conduct experiments, as well as to analyze and interpret data			X
3	Ability to design a system			X
4	Ability to function as a team member	X		
5	Ability to identify, formulate, and solve engineering problems			X
6	Understanding of professional and ethical responsibility	X		
7	Ability to communicate effectively	X		
8	Knowledge of the impact of the profession in a global and social context			X
9	Recognition of the need for life-long learning		X	
10	Knowledge of contemporary issues			X
11	Ability to use modern engineering tools and the techniques			X
12	Providing the opportunity to the student gain more detailed knowledge of chosen research subject in electronics and communications engineering and to apply it.		X	

Contribution of the course: **1:** None, **2:** Partial, **3:** Full.