ELECTRONIC CIRCUITS AND DEVICES

1	Course Title:	ELECTRONIC CIRCUITS AND DEVICES	
2	Course Code:	BMB2012	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	2	
6	Semester:	4	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	Physics II	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. KEMAL FİDANBOYLU	
15	Course Lecturers:	-	
16	Contact information of the Course Coordinator:	e-posta: kfidan@uludag.edu.tr Uludağ Üniversitesi, Bilgisayar Mühendisliği Bölümü Görükle Kampüsü, 16059 Nilüfer, Bursa	
17	Website:		
18	Objective of the Course:	To provide the students with basic knowledge about circuit theory and electronic devices.	
19	Contribution of the Course to Professional Development:	Engineering Science: 80%; Engineering Design: 20%	
20	Learning Outcomes:		
		1	Analyze DC circuits containing resistors, voltage sources, and current sources
		2	Calculate real power on circuit components
		3	Analyze DC circuits using nodal voltage and mesh current methods
		4	Obtain Thevenin and Norton equivalents of different circuits
		5	Explain the properties of semiconductor materials and pn junctions
		6	Examine DC analysis techniques for diode circuits using various models
		7	Explain the operation and characteristics of diode rectifier circuits, Zener diode, photodiode and light-emitting diode circuits
		8	Explain the physical structure and operation of bipolar junction transistors (BJT); Investigate various DC biasing schemes of BJT circuits
		9	Explain the physical structure and operation of junction field effect transistors (JFET) and metal oxide field effect transistors (MOSFET)
		10	Investigate various DC biasing schemes of FET and MOSFET circuits; Develop small-signal models for BJT, JFET and MOSFET amplifier circuits
21	Course Content:		
	Course Content:		

Week	Theoretical	Practice
1	Basic Circuit Elements and Laws	
2	Circuit Analysis Techniques	
3	Important Circuit Concepts	
4	Semiconductor Diodes	
5	Diode Applications	
6	Bipolar Junction Transistor Construction and Operation	
7	Bipolar Junction Transistor Configurations	
8	DC Biasing of Bipolar Junction Transistors (BJT)	
9	Junction Field Effect Transistor (JFET) Construction and Operation	
10	Metal Oxide Field Effect Transistor (MOSFET) Construction and Operation	
11	DC Biasing of Junction and Metal Oxide Field Effect Transistors	
12	Small Signal and AC Analysis of BJTs	
13	Small Signal and AC Analysis of FETs	
14	Small Signal and AC Analysis of MOSFETs	

22	Textbooks, References and/or Other Materials:	1. L. Bobrow, Elementary Linear Circuit Analysis, 2nd Ed., Oxford University Press, 1995.

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	5.00	70.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	28.00	28.00
Others	0	0.00	0.00
Final Exams	1	40.00	40.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Quiz	0	0.00
Final Exam	1	60.00
Contribution of Term (Year) Learning Activities to		40.00
Contribution of Final Exam to Success Grade		60.00

Measurement and Evaluation Techniques Used in the	Classical problem-solving ability will be measured in

24 ECTS / WORK LOAD TABLE

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK2	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK3	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK4	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0

ÖK5	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK6	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK7	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK8	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK9	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK10	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**