HASAN KALYONCU UNIVERSITY
Faculty of Engineering
Course Description Form

COURSE: Electrical Circuit Analysis				
CODE: EE205	**SEMESTER :** FALL			
LANGUAGE: ENGLISH	**TYPE :** COMPULSORY			
PRE-REQUISITES: - **CO-REQUISITES:** -	**THEORY**	**PRACTICAL**	**CREDIT**	**ECTS**
WEEKLY HOURS :	3	2	4	6

CONTENT OF THE COURSE:
Dear students, welcome to the circuit analysis course. This course is designed to provide students with the basic principles of electrical current effects, such as, basic and complex circuit solving, and calculating the effects of direct current on circuit elements. Evaluation of the course will be done with midterm, homework-laboratory and final exams.

OBJECTIVE OF THE COURSE:
- To learn the basic concepts of electrical circuits and gain the necessary engineering skills for the analysis and design of DC circuits.
- To gain the ability of analyzing circuits and designing circuit for purpose by using circuit theories.

WEEKLY SCHEDULE	
Week	**Topics**
1	Introduction, Basic Concepts, Ohm's Law
2	Kirchoff's Current and Voltage Law
3	Serial circuits and sample applications
4	Parallel circuits and sample applications
5	General review, Power and Energy concepts
6	Superposition theorem and sample question solutions
7	Thevenin's theorem and examples
8	Midterm Exam
9	Norton's theorem and examples
10	Source Transformation Method and Maximum Power Transfer Method
11	Mesh Current Method and examples
12	Node Voltages Method and examples
13	Capacitors and inductors. Serial, parallel and mixed connected circuits
14	General Evaluation

TEXTBOOK: : James W. NILSSON, Susan RIEDEL (2007), Electric Circuits 8th Ed. Prentice Hall. USA.
REFERENCE BOOKS: John O'MALLEY (2002), Basic Circuit Analysis 3rd Ed., McGraw Hill, USA.

EVALUATION SYSTEM:		
IN-TERM STUDIES	**QUANTITY**	**PERCENTAGE (%)**
Midterm Exam	1	30
Quiz	3	15
Laboratory works	13	15
Final Exam	1	40
TOTAL	**18**	100
CONTRIBUTION OF INTERM STUDIES TO OVERALL GRADE	17	60
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE	1	40
TOTAL	**18**	100

COURSE CATEGORY:	**PERCENTAGE (%)**
Mathematics and Basic Sciences	40
Engineering	40
Engineering Design	20
Social Sciences	

TABLE OF ECTS / WORKLOAD:			
Activities	**QUANTITY**	**Duration (Hour)**	**Total Workload**
Course Duration	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	7	98
Laboratory works	13	2	26
Mid-term	1	1,5	1,5
Final examination	1	1,5	1,5
Quiz	3	1	3
Total Work Load			**169**
Total Work Load / 30			**5,63**
ECTS Credit of the Course			**6**

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
LO1	3	3	0	0	0	0	0	0	0	0	0
LO2	3	3	1	0	0	0	0	0	0	0	0
LO3	3	3	2	0	0	0	0	0	0	0	0
LO4	3	3	1	0	0	0	0	0	0	0	0
LO5	3	3	2	0	0	0	0	0	0	0	0
	PO: Program Outcomes | LO: Learning Outcomes Values: 0: None | 1: Low | 2: Medium | 3: High										

INSTRUCTOR(S):	Asst. Prof. Dr. Ulaş GÜLEÇ
FORM PREPARATION DATE:	22.05.2019

LEARNING OUTCOMES OF THE COURSE:	PROGRAM OUTCOMES:
LO1: To learn the basic elements of electrical circuits and basic laws of circuit analysis (Ohm's Law, Kirchoff's Current and Voltage Laws) **LO2:** To learn the basic terms and definitions used in electricity (short circuit, open circuit, dependent source, independent source,…) **LO3:** To learn circuit analysis methods (Superposition Theorem, Thevenin Theorem, Norton Theorem,…) **LO4:** To gain the ability of circuit analysis in steady state and transient conditions **LO5:** To gain the ability to design, analyze and control circuit	**PO1:** Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems. **PO2:** Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose. **PO3:** Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose. **PO4:** Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively. **PO5:** Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions. **PO6:** Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually. **PO7:** Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions. **PO8:** Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself. **PO9:** Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice. **PO10:** Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development. **PO11:** Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.