	Course name: EE214 Circuit Theory II		**Department:** Electrical and Electronics Engineering			Semester 5
	Methods of Education					Credit (ECTS)
	Lecture	Study Time	Homework	Exam (incl. Prep.)	Total	5
	50	55	20	30	150	
Language	English					
Compulsory/Elective	Compulsory					
Prerequisites	EE213 Circuit Theory I					
Course Contents	Sinusoids and Phasors, Sinusoidal Steady-State Analysis,Two-Port Networks, AC Power Analysis,Three-Phase Circuits, Magnetically Coupled Circuits, Frequency Response,Laplace Transform					
Course Objective	Introducing basic knowledge of linear electric circuits,giving the concept of modeling, network equations in different domains, basic knowledge in linear algebra, graph theory and differential equations are applied to engineering area.					
Learning Outcomes and Competences	Apply circuit analysis techniques to 3 phase systems. Match impedance for maximum power transfer. Find Norton and Thevenin equivalents of the circuits. Analyze a circuit in s domain.					
Textbook and /or References	**Main texbooks :** 1. Fundamentals of Electric Circuits, C. K. Alexander and M. N. O. Sadiku, McGraw-HillBookCompany **Supplementary texbooks:** 2. ElectricCircuits, J. W. Nilsson and S. A. Riedel, Pearson Prentice Hall. 3. Basic Engineering Circuit Analysis, J. David Irwin, Robert M. Nelms, 10th edition.					
Assessment Criteria			If any, mark as (X)			Percentage (%)
	Midterm Exams		X			25
	Quizzes		X			15
	Homework		X			10
	Projects					
	Laboratory work					
	Other					
	Final Exam		X			50
Instructors	Assist. Prof. Dr. Thamer Al-Mashhadani					

Weekly Schedule

Week	Subject
1	Sinusoids, Phasors, Phasor Relationships for Circuit Elements, Impedance and Admittance.
2	Kirchhoff's Laws in the Frequency Domain, Impedance Combinations, Sinusoids AC analysis: Nodel analysis, mesh analysis.
3	Superposition Theorem, Source Transformation.
4	Thevenin and Norton Equivalent Circuits, Op Amp AC Circuits.
5	AC power analysis: Instantaneous and Average Power, Maximum Average Power Transfer Apparent Power and Power Factor.
6	Complex Power, Conservation of AC Power.
7	Three phase circuits: Balanced Three-Phase Voltages, Balanced Wye-Wye Connection, Balanced Wye-Delta Connection, Balanced Delta-Delta Connection, Balanced Delta-Wye Connection.
8	Power in a Balanced System, Unbalanced Three-Phase Systems.
9	**Mid-term Exam**
10	Frequency Response: Transfer Function, he Decibel Scale, Bode Plots.
11	Series Resonance, Parallel Resonance.
12	Passive Filters, application of the Laplace Transform, Circuit Element Models.

13	Circuit Analysis, Transfer Functions, State Variables.
14	Two Port Network: Impedance Parameters, Admittance Parameters.
15	Hybrid Parameters, Transmission Parameters.