WASHINGTON STATE UNIVERSITY
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School of Engineering and Computer Science

ECE 321: Circuit Modeling and Analysis II
Master Syllabus

Catalog Data:		**ECE 321: Circuit Modeling and Analysis II**; 3 credits Magnetically coupled circuits, frequency response, Laplace transforms, frequency response, two-port networks and Fourier circuit analysis. Typically offered in Fall.
Class Schedule:		Three lecture hours per week, for one semester.
Laboratory Schedule:		None
Prerequisites by Course:		ECE 260; MATH 315
Prerequisites by Topic:		1. Understanding of circuit theory, modeling and analysis. 2. Understanding of network theory as applied to linear and non-linear circuits under static and dynamic operation.
Typical Text:		Alexander, K. and Sadiku, M., *Fundamentals of Electric Circuits, 5th Edition*, McGraw-Hill, 2013, ISBN 978-0-07-338057-5.
Course Coordinator:		Dr. Praveen Sekhar
Course Objectives:		Students will: 1. Develop circuit models in terms of differential equations. 2. Use Laplace transforms for analysis of circuits in the s-domain. 3. Perform Fourier analysis.
Topics Covered:		1. Complex Frequency 2. Frequency response, poles and zeros 3. Mutual inductance and magnetically coupled circuits 4. Transformers 5. Two port networks 6. Fourier analysis 7. Laplace transform techniques 8. State space analysis
Lab Experiments and Activities:		None
Course Outcomes:	Students will be able to:	
	Assessed for Student Outcomes	1-a. Demonstrate fundamental knowledge of circuit analysis in solving advanced electrical engineering problems. 1-c. Use frequency-domain electric circuit models such as Bode plots to formulate solutions. 1-d. Apply Laplace and Fourier transforms to solve complex electric circuit problems.
	Other	6-a. Identify circuit models and apply appropriate frequency. transformations and analysis techniques.

Relationship of Course to Program:	Meets: Educational Objectives 1 Student Outcomes 1, 6		
Prepared by:	Dr. Praveen Sekhar	Date:	March 9, 2018; 2/21/18 (mb) December 30, 2009 reviewed 10/2011 Reviewed 09/17