

Tsuyama College		Year	2024		Course Title	Electrical Network Analysis
Course Information						
Course Code	0026		Course Category	Specialized / Elective		
Class Format	Lecture		Credits	Academic Credit: 2		
Department	Advanced Electronics and Information System Engineering Course		Student Grade	Adv. 2nd		
Term	First Semester		Classes per Week	2		
Textbook and/or Teaching Materials	Electrical Network Analysis(The Institute of Electrical Engineers of Japan)					
Instructor	NISHIO Kimihiro					
Course Objectives						
Learning purposes : We use network theory mathematically to solve circuit problems. Network theory does not solve all the problems of electric circuits, but the purpose is to solve these problems while showing the relation with the AC theory that has already been learned.						
Course Objectives : 1. The network can be analyzed by signal transmission. 2. The two-terminal network can be expressed by the drive point impedance. 3. Reactance two-terminal network can be synthesized. 4. Can analyze a four-terminal network.						
Rubric						
	Excellent	Good	Acceptable	Not acceptable		
Achievement 1	The student can understand and accurately analyze the network.	The student can understand and analyze the network.	The student can almost analyze the network.	The student will not understand and analyze the network.		
Achievement 2	The student can understand and accurately explain the two-terminal network.	The student can understand and explain the two-terminal network.	The student can almost explain the two-terminal network.	The student will not understand and explain the two-terminal network.		
Achievement 3	The student can understand and accurately explain reactance two-terminal network.	The student can understand and explain reactance two-terminal network.	The student can almost explain reactance two-terminal network.	The student will not understand and explain reactance two-terminal network.		
Achievement 4	The student can understand and accurately explain four-terminal network.	The student can understand and explain four-terminal network.	The student can almost explain four-terminal network.	The student will not understand and explain four-terminal network.		
Assigned Department Objectives						
Teaching Method						
Outline	General or Specialized : Specialized Field of learning : Electrical and electronic Foundational academic disciplines : Engineering / Electrical and Electronic Engineering / Communication Network Engineering  Relationship with Educational Objectives : This class is equivalent to "(2) Acquire basic science and technical knowledge".  Relationship with JABEE programs : The main goal of learning / education in this class is (B).  Course outline : In this lecture, the student will learn about network analysis and design or synthesis. The former is "to find the characteristics of the input and output when the internal network configuration is given." The latter is "design the internal network given the inputs and outputs."					
Style	Course method : Classes will be held in the first semester due to class timetable. Courses are offered in 2 credit hours per week. Classes are centered around textbooks. Solve the exercises during class. Students are required to submit reports.  Grade evaluation method : Exams (70%) + Report (30%). Examinations will be conducted a total of 1 time, and the evaluation ratios will be the same. Textbooks and notebooks are not allowed for the exam. For students who score less than 60 points at the end of the second semester, a retaking exam will be given with advance instructions if attendance and class attitude are good. The result of the retaking exam will be read as the result of the regular exam, with a maximum final grade of 60 points.					

Notice	<p>Precautions on the enrollment : This is a "class that requires study outside of class hours". Classes are offered for 15 hours per credit, but 30 credit hours are required in addition to this. Follow the instructions of your instructor for these studies.</p> <p>Course advice : Carefully check and understand the meanings and definitions of terms that appear in textbooks. Solve the examples and the exercises prepared at the end of each chapter and check the contents carefully. This course is based on Electric Circuit II, which students learned in the 4th year of the main course, and analyzes and designs various circuit networks. Foundational subjects : Electric Circuits II (4th year), Electronic Circuits (4th) Related subjects : System Control Engineering (Adv. 2nd)</p> <p>Attendance advice : It is recommended that you take notes while understanding the contents explained in the class. If you do not understand the content of the lesson, ask the teacher. If you are late for the start time, you will be treated as absent after 25 minutes.</p>
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#### Characteristics of Class / Division in Learning

<input type="checkbox"/> Active Learning	<input type="checkbox"/> Aided by ICT	<input checked="" type="checkbox"/> Applicable to Remote Class	<input type="checkbox"/> Instructor Professionally Experienced
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#### E l e c t i v e s u b j e c t s

#### Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance	
		2nd	Introduction of basic circuit network	
		3rd	Overview of two-terminal circuit and four-terminal circuit	Two-terminal circuit and four-terminal circuit
		4th	Response, Frequency characteristics	Response, Frequency characteristics
		5th	Immittance function	Immittance function
		6th	Reactance two-terminal network	Two-terminal network
		7th	Series circuit, Parallel circuit	Series circuit, Parallel circuit
		8th	Reactance function, Equivalent circuit of reactance circuit	Reactance function, Equivalent circuit of reactance circuit
	2nd Quarter	9th	Synthesis of reactance circuit	Synthesis of reactance circuit
		10th	Basic expression of four-terminal network	Basic expression of four-terminal network
		11th	Four-terminal network connection	Four-terminal network connection
		12th	Equivalent circuit of four-terminal network	Equivalent circuit of four-terminal network
		13th	Equivalent circuit of each network	Equivalent circuit of each network
		14th	Analysis method of each network	Analysis method of each network
		15th	(1st semester final exam)	
		16th	Return and commentary of exam answers	

#### Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Report	Other	Total
Subtotal	70	0	0	0	30	0	100
Basic Proficiency	0	0	0	0	0	0	0
Specialized Proficiency	70	0	0	0	30	0	100
Cross Area Proficiency	0	0	0	0	0	0	0