



weekly lesson schedule

Course Lecturer		Duha Alla Talb			
e-mail					
Title		Electronics			
Course Coordinator					
Course Objectives		1- To review the fundamental concepts of physics to form the basis for engineering subjects taught subsequently. • To provide an introduction to the fundamentals of electronic materials in general and the semiconductors materials in special			
Course Description		1- To understand the physical building of the materials in the general case and the physical construction of the semiconductor materials in the special case. 2- To understand the method of employing electronic devices on electronic circuits and study the effect of these devices on these circuits. 3- To understand the behavior of electronic devices to be able for designing electronic circuits.			
Textbooks		CALCULUS, Thomas, twelfth edition			
final exam 50	project	Assignment	daily exams	lab	Midterm Exam
	١٠	10	20	10	10
General Notes					



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Week	Date	Topics Covered	Number of Hours	Notes
١	1٠-11-2024	Atoms, Bohr model, electrons and shells, energy levels, valence electron, Ionization, the quantum model, material classifications; conductors, insulators, and semiconductors, band gap, Silicon and germanium atoms.		
٢	١٧-11-2024	Semiconductor materials: Ge, Si, and GaAs, Covalent bonding, intrinsic and extrinsic semiconductors materials, currents in semiconductors; electron and hole current flow, majority and minority carriers, p-type and n-type semiconductor materials		
٣	2٤-11-2024	PN-junction and barrier potential. semiconductor diode, characteristics of diode, Silicon diode versus germanium diode, ideal diode versus practical, current-voltage relationship, temperature effect.		
٤	١-12-2024	Diode resistance level, Diode equivalent circuits, transition and diffusion Capacitance, reverse recovery time.		
٥	٨-12-2024	Other types of diodes; light emitting diode and Zener diode.		
٧-٦	15-12-2024 22-12-2024	Transistors; transistors types; Bipolar junction transistor BJT; transistor construction, transistor operation, transistor configurations; common base configuration, common emitter configuration, common collector configuration.		
٩-٨	29-12-2025 5-1-2025	BJT DC biasing, operation point, limits of operation, pnp transistors, bias stabilization, troubleshooting techniques.		
١٢-١١-١٠	12-1-2025 19-1-2025 26-1-2025	BJT AC analysis; amplification in AC domain, BJT modeling, the 're' transistor model, early voltage, Determining the current and voltage gain.		
١٤-١٣	2-2-2025 9-2-2025	The hybrid equivalent model, complete hybrid equivalent model,		
١٥	16-2-2025	Field effect transistor FET; FET types, construction and characteristics of JFET; P-channel and n-channel, voltage-controlled resistor, transfer characteristics, thermal characteristics, electrical characteristics, operation region, FET biasing.		

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Head of Department signature: