MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Electronics**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**EPE201**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name: mohammed hasan ali		**e-mail**	E-mail: mohammedhasanali@uodiyala.edu.iq	
Module Leader's Acad. Title	Lect.		**Module Leader's Qualification**	M.Sc.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. This course deals with the basic concept of electronic circuits. 2. This is the basic subject for all electronic circuits. 3. Promote students with the necessary scientific and practical skills in the discipline for solving engineering problems and treating them logically and scientifically. 4. Prepare the students to Engage in ongoing professional development activities by pursuing graduate studies and/or other learning opportunities to respond to the arising challenges. 5. To understand Semiconductor Materials and PN Junction. 6. To perform Bipolar Junction Transistors. 7. To understand Junction field effect transistor
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electronic circuits works. 2. During the school year, the student learns the basics of electronics.. 3. Familiarity with the basic concepts of the types of conductive, semiconductor, and insulator materials. 4. Learn how to think about how a diode works and its applications 5. The student learns other types of diodes and applications of zener diodes 6. Explain the Bipolar Junction Transistors 7. Explain the Operational Amplifiers. 8. Identify the Junction field effect transistor

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Part A - Basic Concepts** Semiconductor Materials and PN Junction: Forward biased, reverse biased, and I-V relationship, Diodes: models and circuit analysis. Diode applications (rectifiers and others). Transistors: Bipolar Junction Transistors(BJTs),. DC Biasing Circuits of BJTs [18 hrs] **Part B - Methods of Analysis** BJT modeling and AC, Junction field effect transistor, and metal-oxide-semiconductor field effect transistor (JFET & MOSFET). DC and small signal AC analysis. Electronic circuits applications (at least five Samples in details). Operational Amplifiers, Amplifier configurations. Multistage amplifiers. [15 hrs]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**1. Behavior management** Behavior management strategies foster an atmosphere of mutual respect, reduce disruptive behavior and ensure students have an equal opportunity to fulfill their potential in the classroom. It's crucial to provide them with both a positive and productive learning environment. Examples include establishing a reward system with an interactive chart where students move up or down depending on their performance and behavior in class. **2. Blended learning** With a blended learning teaching strategy, technology is incorporated with traditional learning. This allows students to work at their own pace, research their ideas and become more physically engaged during lessons. Examples include providing interactive tablets or whiteboards with engaging activities and posting classwork online for easier access. **3. Cooperative learning** Group work is a cooperative learning strategy that allows students with various learning levels to work together. By encouraging them to express their own ideas and listen to others' ideas as a group, you help students develop communication and critical thinking

	skills. Examples include solving math puzzles together, performing skits as a team or working on group presentations. **4. Formative assessment** A formative assessment is used periodically to monitor student learning incrementally. This can more effectively measure the process of learning as opposed to end-of-unit tests and can help you to improve your teaching methods throughout the year. Examples of this teaching strategy include self-evaluation exercises and summarizing a topic in multiple ways. **5. Student-led teaching** The student-led teaching strategy lets students become the teacher. In a classroom with learners at different levels, you can better engage those learning faster by showing them how to teach and give feedback to their peers.They may team-teach or work in groups to teach a new topic. Examples include letting a student teach an entire lesson or having advanced writers lead a peer-editing session as well as provide constructive criticism.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome

Formative assessment	**Quizzes**	2	10% (10)	5 and 12	LO #1, #4 and #6, #8
	Assignments	2	10% (10)	3 and 13	LO #3, # 5and #7, #8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	14	LO #5, # 6and #8
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	• Semiconductor Materials ,PN Junction • Forward biased, reverse biased
Week 2	• I-V relationship • Diodes: models • circuit analysis
Week 3	• Diode Applications:
Week 4	rectifiers and others) Zener Diode
Week 5	Bipolar Junction Transistors(BJTs)

Week 6	DC Biasing Circuits of BJTs
Week 7	BJT modeling and AC, Junction,
Week 8	**Mid-term Exam**
Week 9	field effect transistor
Week 10	metal-oxide-semiconductor field effect transistor (JFET & MOSFET).
Week 11	DC and small signal AC analysis.
Week 12	Electronic circuits applications (at least five Samples in details)
Week 13	Operational Amplifiers
Week 14	Amplifier configurations
Week 15	Multistage amplifiers.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Lab. Equipment's
Week 2	Lab 2: Automatic Lamp Dimming circuit
Week 3	Lab 3: Diode characteristics
Week 4	Lab 4: Rectifier circuits
Week 5	Lab 5: Filter circuits
Week 6	Lab 6: Zener Diode characteristics
Week 7	Lab 7: CLIPPERS and CLAMPERS circuits

Week 8	Lab 8: LED characteristics
Week 9	Lab 9: Transistor characteristics
Week 10	Lab 10: FET \ MOSFET characteristics
Week 11	Lab 11: Power supply circuits
Week 12	Lab 12: PUT characteristics
Week 13	Lab 13: SCR rectifier circuits
Week 14	Lab 14: Diac and Triac characteristics
Week 15	**Final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• Robert L. Boylestad and Louis Nashelsky, Electronic Devices and Circuit Theory, 7th or 10th or 11th Edition.	Yes
Recommended Texts	• electronic devices and circuit theory; By Robert L.Boylestad • electronic circuit; By By Dr. R.S. Sedha	No
Websites	Any other materials available on the web.	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.