

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Medical Communication systems		Module Delivery	
Module Type	Core		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MIET 3203			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGIII	Semester of Delivery		6
Administering Department	MIET	College	Faculty of Engineering techniques	
Module Leader	Dr. Ahmed Mohammed Ojeimy		e-mail	ahmed.m.ojeimy@gmail.com
Module Leader's Acad. Title	Asst. Lecturer		Module Leader's Qualification	MSc
Module Tutor			e-mail	
Peer Reviewer Name	Dr. Ahmed Mohammed Ojeimy		e-mail	ahmed.m.ojeimy@gmail.com
Scientific Committee Approval Date	23/3/2026		Version Number	1

Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	Signals and systems		Semester	UGIII-S5
Co-requisites module			Semester	

Module Aims, Learning Outcomes and Indicative Contents
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أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To learn the types of digital and analog modulation 2. To distinguish the difference between digital and analogue modulation 3. To learn the types of impulse modulation. 4. To learn spread spectrum systems 5. To learn the biomedical sensor network 6. To learn mobile communications (3G / 4G) 7. To learn telemedicine and healthcare systems 8. To learn the Internet of Things in medical applications
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand and mitigate noise in communication systems. 2. Master the basics of sampling. 3. The student learns the types of digital and analog modulation. 4. The student distinguishes the difference between digital and analogue modulation. 5. The student learns the types of impulse modulation. 6. The student learns spread spectrum systems 7. The student learns the biomedical sensor networks. 8. Learn wireless sensor networks. 9. The student learns mobile communications (3G / 4G) 10. The student learns telemedicine and healthcare systems 11. The student learns the Internet of Things in medical applications
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: 1. Communication System and types [4 H]. 2. AM and Fm modulation system and types and examples [4 H]. 3. Sampling, PAM, PWM, PPM, and PCM and examples [10 H]. 4. Digital Modulation Techniques, ASK, FSK, and PSK examples [8 H]. 5. Spread Spectrum Systems, Wireless Sensor Network, Biomedical Sensor Network, and Mobile Communication (3G/4G) and examples [20 H]. 6. Telemedicine and Health care Systems, IoT in Medical Applications and examples [8 H].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lectures - means of clarification - intellectual questions - scientific exhibitions - scientific competitions

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10 %(10)	4, 8, 12, 14	LO # 1, 2, 3 LO # 4, 5, 6. LO # 7, 8, 9. LO # 10, 11
	Assignments	2	10 %(10)	5,13	LO # 1-4, and 5-11
	Projects / Lab.	2	10 %(10)	Continuous	
	Report	14	10 %(10)	14	LO # 1-11
Summative assessment	Midterm Exam	2h	10 %(10)	7	LO # 1-6
	Final Exam	4h	50 %(50)	16	ALL
Total assessment			100 %(100)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Noise in Communication Systems
Week 2-3	Sampling, PAM, PWM, PPM, and PCM
Week 4-5	Digital Modulation Techniques
Week 6	Spread Spectrum Systems
Week 7	Mid-Exam
Week 8	Wireless Sensor Network

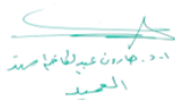
Week 9-10	Biomedical Sensor Network
Week 11-12	Mobile Communication (3G/4G)
Week 13	Telemedicine and Health care Systems
Week 14	IoT in Medical Applications
Week 15	Preparing for final exam

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1-2	Amplitude Modulation large carrier and Amplitude Modulation suppressed carrier
Week 3	Frequency Modulation
Week 4	Amplitude Demodulation
Week 5	PAM
Week 6	PWM
Week 7	PPM
Week 8	ASK
Week 9	FSK
Week 10	PWM
Week 11	BPSK
Week 12	Biomedical Sensor Network
Week 13	Telemedicine and Health care Systems
Week 14	IoT in Medical Applications

Learning and Teaching Resources مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to Communication Systems	NO
Recommended Texts	Introduction to Communication Systems (second edition- by Ferrel. G. Stremler)	YES
Websites	1. https://www.coursera.org/search?query=Electromagnetic%20Fields&=null&index=prod_all_launched_products_term_optimization . 2. www.tallguide.com 3. www.ainfoinc.com 4. www.millitech.com 5. www.rfcafe.com 6. www.globalspec.com	

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 adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				


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العبد

عميد الكلية : أ.د. هارون عبد الكاظم شهد

التاريخ : 2026 / 3 / 23


د.د. محمود شاكر

رئيس القسم : أ.د. محمود شاكر نصر

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د.د. احمد محمد الشمري

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