



Ministry of Higher Education and
Scientific Research – Iraq
Al-Furat Al-Awsat Technical University
Al-Musaib Technical College
Department of Electrical Engineering Techniques



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information						
معلومات المادة الدراسية						
Module Delivery		DC Motors			Module Title	
☒ Theory Lecture ☒ Lab Tutorial ☒ Practical ☒ Seminar		Core			Module Type	
		EET207			Module Code	
		6			ECTS Credits	
		150			SWL (hr/sem)	
2	Semester of Delivery		Uo	Module Level		
Al-Furat Al-Awsat Technical University Al-Musaib Technical College		College	Electrical Engineering Techniques	Administering Department		
		e-mail	Module Leader			
MASTER	Module Leader's Qualification		Assist Professor	Module Leader's Acad. Title		
E-mail		e-mail	Name (if available)		Module Tutor	
E-mail		e-mail	Name	Peer Reviewer Name		
1.0	Version Number		01/06/2023	Scientific Committee Approval Date		

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Relation with other Modules					
العلاقة مع المواد الدراسية الأخرى					
	Semester	None		Prerequisite module	
	Semester	None		Co-requisites module	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
1. Understand the basic principles, construction, and working of DC motors. 2. Identify the different types of DC motors, including brushed and brushless motors, and their applications. 3. Calculate the torque and speed of DC motors using various equations and formulas. 4. Analyze the performance characteristics of DC motors, including efficiency, power factor, and speed control. 5. Develop an understanding of maintenance procedures for DC motors, including cleaning, lubrication, and inspection of electrical components. 6. Implement safety measures for working with DC motors, including risk assessment, protective gear, and emergency procedures. 7. Explore the various applications of DC motors in different industries, such as industrial automation, robotics, and electric vehicles.	Module Objectives أهداف المادة الدراسية
1. Understand the basic principles, construction, and working of DC motors. 2. Identify the different types of DC motors, including brushed and brushless motors, and their applications. 3. Calculate the torque and speed of DC motors using various equations and formulas. 4. Analyze the performance characteristics of DC motors, including efficiency, power factor, and speed control. 5. Develop an understanding of maintenance procedures for DC motors, including cleaning, lubrication, and inspection of electrical components. 6. Implement safety measures for working with DC motors, including risk assessment, protective gear, and emergency procedures. 7. Explore the various applications of DC motors in different industries, such as industrial automation, robotics, and electric vehicles.	Module Learning Outcomes مخرجات التعلم للمادة الدراسية
1. Introduction to DC motors and their basic principles 2. Construction of DC motors, including stator, rotor, commutator, and brushes	Indicative Contents المحتويات الإرشادية

3. Working of DC motors, including the Lorentz force and electromagnetic induction 4. Types of DC motors, including brushed and brushless motors, and their applications 5. Torque and speed calculations for DC motors using various equations and formulas 6. Performance characteristics of DC motors, including efficiency, power factor, and speed control 7. Maintenance procedures for DC motors, including cleaning, lubrication, and inspection of electrical components 8. Safety measures for working with DC motors, including risk assessment, protective gear, and emergency procedures 9. Applications of DC motors in different industries, such as industrial automation, robotics, and electric vehicles 10. Future developments in DC motor technology and their potential impact on various industries.	
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.	Strategies

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
5.2	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	78	Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال

			الفصل
4.8	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	72	Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل
150			Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري
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Material Covered	
DC motor, principle of dc motors torque develops in motor	Week 1
reverse direction of rotation – back e.m.f. equivalent	Week 2
Circuit – calculation of torque – torque characteristics – speed characteristics	Week 3, 4
Type of dc motor and their characteristics.	Week 5, 6, 7
Speed control of D.C. motor	Week 8, 9
Losses in dc motor and generators swine brush test.	Week 10
Electric braking of D.C. motor	Week 11
Necessity of D.C. motor starter	Week 12
Testing of D.C. machines	Week 13
Losses in dc motor and generators swine brush test.	Week 14
Final Examination	Week 14

Delivery Plan (Weekly Lab. Syllabus)	
المناهج الاسبوعي للمختبر	
Material Covered	
Shunt Motor No Load Test	Week 1
Shunt Motor Characteristic	Week 2
Shunt Motor No Load Test	Week 3
Speed control of D.C shunt motor using Flux and Rheostatic control	Week 4
Speed Control of DC Shunt Motor Using Variable Supply Voltage	Week 5
Speed Control of DC series Motor Using Variable Supply Voltage	Week 6
DC Shunt Motor Load test	Week 7
DC Motor Load test	Week 8
Speed control for D.C motor, (Uncontrolled)	Week 9

Speed Control of DC Motor (Controlled Rectifiers)	Week 10
Load test of DC series motor and find the curves	Week 11
Load test on DC cumulatively compounded motor	Week 12, 13
Review	Week 14

Learning and Teaching Resources مصادر التعلم والتدريس		
Available in the Library?	Text	
Yes	ELECTRICAL TECHNOLOGY B.L. THERAJA A.K. THERAJA	Required Texts
No	Electric Machinery and Transformers Bhag S. Guru	Recommended Texts
		Websites

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

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.