



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 Title	Transmission and Distribution system		Module Delivery	
Module Type	Core		✓ Theory Lecture ✓ Lab Tutorial ✓ Practical ✓ Seminar	
Module Code	EET400			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	4	Semester of Delivery		1
Administering Department	Department of Electrical Engineering Techniques	College	Al-Furat Al-Awsat Technical University Al-Musaib Technical College	
Module Leader			e-mail	
Module Leader's Acad. Title	Assist Lecturer	Module Leader's Qualification	Master	
Module Tutor	non	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. Students will learn parts of power system, types of distribution system, Study the characteristic and performance of transmission lines. 2. Mechanical design of T.L, 3. The importance of grounding all voltage levels of the power system>
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 1. The parts of power systems, conductor materials of Transmission lines. 2. Meaning of distribution system and their classification . 3. Types of Transmission lines and their charecteristic. 4. Transmission lines constants . 5. Mechanical design of transmission lines (sag) . 6. Grounding of all voltage levels in the power system . 7. The meaning of corona and Ferranti phenomenon's
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Components of power system</u> Distribution systems, types,[8 hrs] transmission lines, constants of T.L,. [16 hrs] Voltage regulation, Corona and Ferranti phenomenon's. <u>Part B – Mechanical design of T.L</u> _Calculation of sag when the points of supports at the same and different.[8 hrs] <u>Part C-Grounding.</u> The importance of grounding the voltage levels of the power[8hr] <u>Part D-Sub Station.</u> The function and types of sub station [4hr]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1-Conceptual Understanding: Explain Transmission and Distribution systems 2-Mathematical Foundations: Provide a solid mathematical for types of transmission lines and distribution systems. 3-Review and Assessment: Regularly review key concepts and provide formative assessments to gauge students' understanding. Offer constructive feedback on their performance to help them identify areas for improvement.
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	6.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	32	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	2.1
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus) المناهج الاسبوعي النظري	
	Material Covered
Week 1	Components of power system, Conductor materials, and advantages and limitation of high voltage transmission
Week 2	Classification of distribution systems, types of Dc distribution systems (radial and ring)
Week 3	Ring Distribution system, point of minimum voltage.
Week 4	Regulation of transmission lines and Ferranti effect
Week 5	Corona phenomenon
Week 6	A,B,C and D constants of short lines.
Week 7	A,B,C and D constants of medium lines.
Week 8	Long Lines
Week 9	Series and parallel connection of T.L
Week 10	Mechanical design of T.L (sag points of support points at same level)
Week 11	Sag with support points at different level.
Week 12	Equipment grounding, methods of neutral grounding,
Week 13	Transformer grounding , grounding by single phase transformer
Week 14	Types of sub-stations
Week 15	Final Examination

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Transmission line Model that located in the laboratory.
Week 2	Lab 2: Transmission line constants (short and open test)
Week 3	Lab 3: Line characteristic for resistive load.
Week 4	Lab 4: Line characteristic for inductive load.
Week 5	Lab 5: Line characteristic for capacitive load.
Week 6	Lab 6: Series connection of transmission lines.
Week 7	Lab 7: Parallel connection of transmission lines
Week 8	Lab 8: Connection of T.L to supply through step up transformer.
Week 9	Lab 9: Connection of T.L to load through step down transformer
Week 10	Lab 10: Connection of transformer at both end of T.L.

Week11	Lab 11:Neutral earthing of transformer
Week12	Lab 12: Zig-Zag transformer.
Week13	Lab 13: Sequence determination of transformer.
Week14	Lab 14: Review
Week15	Examination

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	A Course in Electrical Power, P.V Gupta	Yes
Recommended Texts	MODRN POWER SYSTEM ANALYSIS , JOHN WILLY& SONS	No
Websites	https://www.osha.gov/etools/electric-power/illustrated-glossary/transmission-lines	

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.