
curriculum for Technician Diploma Program in Electrical Wiring Specialization

The curriculum of Technician Diploma in “Electrical Wiring” consists of (66) credit hours as follows:

No.	Field of Requirements	Credit Hours
1	Generic Skills	6
2	Employability Skills	9
3	Supportive Sciences	9
4	Specialization Skills	42
Total		66

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First: Generic Skills Requirements (6) credit hours as follows:

Course Number	Course Title	C.H.	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
10000111	Positive Citizenship and Life Skills	3	3	0	-
10000112	Skills in English Language	3	3	0	-
Total		6	6	0	

Second: Employability Skills Requirements (9) credit hours as follows:

Course Number	Course Title	C.H.	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
10000121	Communication Skills in English Language	3	3	0	10000112
10000122	Small Productive Enterprises Management	3	3	0	-
10000123	Supervision and Industrial Organization	3	3	0	-
Total		9	9	0	

Third: Supportive Sciences Requirements (9) credit hours as follows:

Course Number	Course Title	C.H.	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
10100111	Applied Mathematics	3	3	0	-
10100121	Applied Physics	3	3	0	-
10100122	Applied Physics Laboratory	1	0	3	10100121*
10100131	AutoCAD	1	0	3	
10100141	Engineering Workshop	1	0	3	
Total		9	6	9	

*Co-requisite

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Fourth: Specialization Skills Requirements (42) credit hours as follows:

Course Number	Course Title	C.H.	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
10301101	Principles of Electrical Circuits	3	3	0	10100121*
10301102	Principles of Electrical Circuits Laboratory	1	0	3	10301101*
10401101	Electronic Circuits and Devices	3	3	0	
10401102	Electronic Circuits and Devices Laboratory	1	0	3	10401101*
10301111	Electrical Machines	3	3	0	10301101*
10301112	Electrical Machines Laboratory	1	0	3	10301111*
10301221	Computer-Aided Electrical Drawing	1	0	3	
10301131	Electrical Illumination and installations	3	3	0	10301101*
10301241	Building and Low Voltage Wiring	3	3	0	
10301242	Building and Low Voltage Wiring Workshop	2	0	6	10301101*
10301251	Protection and Control Systems	3	3	0	
10301252	Protection and Control Systems Laboratory	1	0	3	10301251
10301243	Industrial Wiring	3	3	0	10301111*
10301244	Industrial Wiring Workshop	2	0	6	10301243*
10301251	Programmable Logic Controllers and their Applications	3	3	0	10401101
10301252	Programmable Logic Controllers and their Applications Laboratory	2	0	6	10301251*
10301261	Electrical Power Transmission and Distribution Networks	3	3	0	
10301262	Electrical Power Transmission Distribution Networks Laboratory	1	0	3	10301261*
10301291	Training	3			
	Total	42	27		

Guiding Plan for “Electrical Wiring” Specialization/ Technical Diploma Program

First Semester			Second Semester		
Course No.	Course Title	C.H.	Course No.	Course Title	C.H.
10000111	Positive Citizenship and Life Skills	3	10000121	Communication Skills in English Language	3
10000112	Skills in English Language	3	10301101	Principles of Electrical Circuits	3
10100111	Applied Mathematics	3	10301102	Principles of Electrical Circuits Lab.	1
10100121	Applied Physics	3	10401101	Electronic Circuits and Devices	3
10100122	Applied Physics Laboratory	1	10401102	Electronic Circuits and Devices Lab.	1
10100131	AutoCAD	1	10301111	Electrical Machines	3
10100141	Engineering Workshop	1	10301112	Electrical Machines Lab.	1
			10301131	Electrical Illumination and Installations	3
Total		15	Total		18

Third Semester			Fourth Semester		
Course No.	Course Title	C.H.	Course No.	Course Title	C.H.
10000123	Supervision and Industrial Organization	3	10000122	Small Productive Enterprises Management	3
10301241	Building and Low Voltage Wiring	3	10301243	Industrial Wiring	3
10301242	Building and Low Voltage Wiring Workshop	2	10301244	Industrial Wiring Workshop	2
10301261	Electrical Power Transmission and Distribution Networks	3	10301251	Protection and Control Systems	3
10301262	Electrical Power Transmission and Distribution Networks Lab.	1	10301252	Protection and Control Systems Lab.	1
10301251	PLCs and their Applications	3	10301221	Computer-Aided Electrical Drawing	1
10301252	PLCs and their Applications Lab.	2	10301291	Training	3
Total		17	Total		15

Brief Course Description for Electrical Wiring Specialization

First: Generic Skills

المواطنة الإيجابية ومهارات الحياة 10000111 (3:0-3):

يوضح المساق مفهوم المواطنة ومهارات الحياة وأهميتهما في اكتساب مهارات قيمة، والعمل على استخدام هذه المهارات في سعيهم للحصول على تعليم أفضل ونتائج ايجابية في العمل، حيث ان المساق يراعي بناء المعرفة في الموضوعات التي يتضمنها البرنامج كما ويبني المهارة عند الشباب لاستخدامها في تطبيق المعرفة كما ويبني الثقة في قدرات الشباب على استخدام هذه المعرفة والمهارة بالاضافة الى توفير الدعم الشخصي والبيئي لتغيير السلوك من خلال تعزيز قيم المواطنة الايجابية والثقافة المجتمعية البناء والعمل المجتمعي التطوعي.

Skills in English Language 10000112 (3:3-0)

This is a General English Language course which aims at developing the four English Language receptive and productive Skills; Listening, Reading, Writing and Speaking, as well as providing practice for the basics of grammar and vocabulary for effective and meaningful communication inside and outside the classroom.

Second: Employability Skills

Communication Skills in English Language 10000121 (3:3-0)

This is a communication skills course which aims at improving learners' oral and written communication skills by providing learners with the language needed to naturally and confidently communicate in an English speaking workplace environment and real life situations.

إدارة المنشآت الإنتاجية الصغيرة 10000122 (3:3-0)

يوضح المساق مفهوم المنشآت الإنتاجية الصغيرة وأهميتها في الإقتصاد الوطني والقضاء على البطالة، وكيفية إدارتها و مواجهة التحديات التي تعترضها، وتقييم فرص نجاحها من خلال دراسة الجدوى، وآلية إدارة المشتريات والمخزون، وكيفية تمويلها وإدارة شؤونها المالية، وتقديم خدمة العملاء وكذلك الالتزام بأخلاقيات العمل، وكيفية عمل تسويق لها، والطبيعة القانونية لها وخطة العمل اللازمة للبدء بها مع التركيز على التجربة الأردنية في هذا المجال.

الإشراف والتنظيم الصناعي 10000123 (3:3-0)

المنشآت الصناعية انواعها ومواصفاتها واشكالها ، اشكال التنظيم الاداري وميزاتها، دور الفني في تطوير الصناعة ودوره في التسلسل الهرمي في المؤسسة الصناعية و ادارة ظروف العمل في المنشآت الصناعية . التعرف على المخاطر وطرق السيطرة عليها . التعرف على أجهزة ومعدات الحماية حسب المواصفات المعتمدة ، اصناف الحريق معدات مكافحة،

الكهرباء مخاطرها تأثيراتها على الانسان الحماية من الكهرباء والمعالجة من الصدمة الكهربائية، التعامل مع المواد الكيماوية
آثارها مخاطرها وشروط التخزين،القوانين المحلية والضمان الاجنماعي.

Third: Supportive Sciences

Applied Mathematics 10100111 (3: 3-0)

Real numbers coordinate planes, lines, distance and circles. Functions: (operations and graphs on functions), limits, continuity, limits and continuity of trigonometric functions. Exponential and logarithmic functions. Differentiation (techniques of differentiation, chain rule, implicit differentiation). Application of differentiation (increase, decrease, concavity). Graphs of polynomials. Applications: Rolle's Theorem and Mean-Value Theorem, Integration (by substitution, definite integral, fundamental theorem of Calculus). Application of definite integral (area between two curves, volumes)

Applied Physics 10100121 (3: 3-0)

Applied Physics course designed to explain the basic concepts of physics in two fields:
1- Concepts and applications of mechanical physics including: Vectors, motion in one dimension, Laws of Motion (Newton's laws), work and energy and the linear momentum.
2- Concepts of electricity including: electrical force, electrical field, electrical potential difference, capacitance, current and resistance.

Applied Physics Laboratory 10100122 (1:0-3)

Applied Physics Lab course is to accompany the General Physics course.
Laboratory experiments will be in Mechanics and Electricity to reinforce the theoretical portion in the General Physics course.

AutoCAD 10100131 (1:0-3)

Introduction to AutoCAD, application of AutoCAD, commands, geometric entities. geometric construction. dimensioning, free-hand sketching, object representation, orthographic drawing and projections

Engineering Workshop 10100141 (1:0-3)

Apply basic manual skills in engineering workshops: mechanical, electrical and carpentry.

Fourth: Specialization Skills

Principles of electrical circuits 10301101 (3:3-0)

Circuits and circuit elements. DC and AC current. Circuit variables: Voltage, Current, Energy, Power factor, Power, Active power, Reactive power, Apparent power. Connection of circuit elements: series, parallel and compound connections. Energy sources. Basic calculations: Equivalent resistance, impedance, current, voltage, power and energy calculations. KVL, KCL, Superposition principle. Resonance. Measurements of circuit variables.

Principles of electrical circuits Lab. 10301102 (1:0-3)

DC and AC circuit construction and measurements. Resonance. Measuring devices

Electronic circuit and devises 10401101 (3:3-0)

Semiconductor devices. Diodes: classification, characteristics and applications. Transistors: Classification, characteristics and applications. Amplifiers. Oscillators. Logic gates and Integrated circuits: Basic function s, symbols and applications. Introduction to electronic measurements: Oscilloscope applications.

Electronic circuit and devises Lab 10401101 (1:0-3)

Use of oscilloscope in measurements. Investigation of characteristics of semiconductor devices. Construction and study of electronic circuits. Experiments in electronics have to cover the main electronic devices (diode, zener diode, diode applications, BJT, FET, op – amp, oscillator, SCR)

Electrical Machines 10301111 (3:3-0)

Types of electrical machines, transformers, motors, generators special machines, construction, principles of operation, characteristics, applications, maintenance.

Electrical Machines Lab. 10301112 (1:0-3)

Connection of various types of electrical machines, measurement of losses and efficiency, speed control and mechanical characteristics of types of motors, external characteristics of generators.

Protection and Control Systems 10304211 (3:3-0)

Electrical faults. Importance of protective devices. Classification of protective devices. Switches, fuses, circuit breakers, contactors, relays. Examples of protective and control systems used in process control, motors, wiring.

Protection and Control Systems Lab. 10304212 (1:0-3)

The course aims at giving the students practical skills in order to select ,wire troubleshoot and maintain the most common control and protection devices like fuses, circuit breakers , relays ,contactors ,timers ,switches ,and measuring transformers

Computer-Aided Electrical Drawing 10301221 (1:0-3)

Automated electrical engineering drawing using computer graphic packages. Electrical block and wiring diagrams symbols of basic elements of electrical and electronic circuits, devices and machines. Block diagram of electrical & electronic systems. Schemes reading.

Electrical illumination and installations 10301131 (3:3-0)

Introduction to electromagnetic radiation and light, Light quantities ,Electrical lamps and their applications ,Interior Exterior Lighting ,streets lighting ,flood lighting. Illumination calculations ,Electrical Installations , cables and wires ,Junction Boxes , Switches and lighting circuits control ,Trunks and conduits outlets ,sockets , Distribution boards ,Voltage drop calculations ,Protection devices ,Fuses ,Circuit Breakers and Relays.

Building and low voltage wiring 10301241 (3:3-0)

Wiring for lighting and power systems in buildings and their calculations, emergency and standby power systems, fire alarm systems and burglar alarm systems in buildings, methods of wiring, testing and measuring wiring parameters, choosing components.

Building and low voltage wiring workshop 10301242 (2:0-6)

Controlling electrical pulps lighting, Wiring electrical bells. Wiring interphone. Wiring street lightings. Security doors wiring opening and closing control methods. Traffic lights systems. Earthing.

Industrial wiring 10301243 (3:3-0)

Electrical drawing in factories, Symbols, Feeding systems, Electrical wiring methods, Main and subsidiary panel boards, Distribution boards, Cross section and drop voltage calculations, Electrical motors and their control devices, Starters, Starting methods protections, Power systems and wiring systems protection (Selective protection), Air conditioning and ventilation devices and their connections.

Industrial wiring workshop 10301244 (2:0-6)

Wiring of electrical motors. Rewinding of motors. Wiring of cables. High-voltage wiring.

Electrical power transmission and distribution networks 10301261 (3:3-0)

This Course covers ; calculation of networks parameters " R-L-C" for 1- phase and 3- phase networks, equivalent circuits for transmission lines, representation of lines, types of conductors & cables.

Calculation of; power, voltage drop, efficiency and voltage regulation for transmission & distribution networks. Towers, insulators, AC & DC distribution networks, Substations; types, equivalents & devices.

Electrical power transmission and distribution networks 10301262 (1:0-3)

This Course covers different experiments on transmission line model; open & short circuit tests, short & medium lines, power losses, voltage drop, loading of transmission line.

Programmable logic controllers and their Application 10408223 (3:3-0)

Comparison between relays and programmable controllers, basic structure of PLC, cycle-scan. CPU memory, Registers, timers, and counters addresses I/O modules, interfacing programming instructions, Programming devices programming procedures, peripheral equipments, troubleshooting and maintenance

Programmable logic controllers and their Application Lab 10408224 (2:0-63)

Identification of PLC architecture, I/O modules, programming languages, procedures, instruction set, control instructions, data manipulation, basic troubleshooting and maintenance

Training 10301291 (3:0-280)

Equivalent to 280 hours of field training related to electrical wiring and installations.