



Republic of Iraq - Ministry of Higher Education and Scientific Research
Al-Furat Al-Awsat Technical University
Bachelor's degree in Electrical Engineering Techniques (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 30 hr
Program Curriculum (2023 - 2024)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة الفرات الأوسط التقنية
بكالوريوس في تقنيات الهندسة الكهربائية (الدورة الأولى)
أربع سنوات (ثمان فصول دراسية) - 240 وحدة ائتمانية - كل وحدة ائتمانية = 30 ساعة
المناهج الدراسية للعام الدراسي 2023-2024



| Level | Semester | No. | Module Code | Module Name in English | اسم المادة التدريسية | Language | SSWL (hr/w) | | | | | | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code | |
|-------|----------|------|-------------|-----------------------------|---------------------------------------|--------------------------------|-------------|-------------|------------|-----------|------------|-------------|-------------|-------------|--------------|------------|------|-------------|-----------------------------|------|
| | | | | | | | CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | | | | | | | | |
| UGI | One | 1 | ATU23011 | DC Electrical Circuits | دوائر التيار المستمر | English | 3 | | 2 | | | | 3 | 78 | 72 | 150 | 6 | C | LRM | |
| | | 2 | ATU23012 | Digital Technologies | التقنيات الرقمية | English | 3 | | 2 | | | | 3 | 78 | 72 | 150 | 6 | C | LRM | |
| | | 3 | ATU23013 | Engineering Drawing | الرسم الهندسي | English | | | 4 | | | | 3 | 63 | 62 | 125 | 5 | B | None | |
| | | 4 | ATU23014 | Differential Mathematics | الرياضيات التفاضلية | English | 2 | | | | 2 | | 3 | 63 | 62 | 125 | 5 | B | LRM | |
| | | 5 | ATU23015 | Engineering Workshops | الورش الهندسية | English | | | 4 | | | | 3 | 63 | 62 | 125 | 5 | B | None | |
| | | 6 | ATU23016 | English Language (Beginner) | اللغة الانكليزية (مستوى اول) | English | 2 | 1 | | | | | 3 | 48 | 27 | 75 | 3 | S | LRM | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 10 | 1 | 12 | 0 | 2 | 0 | 18 | 393 | 357 | 750 | 30 | | |
| | UGI | Two | 1 | ATU23021 | Engineering Mechanics | الميكانيك الهندسي | English | 3 | | 2 | | | 3 | 78 | 72 | 150 | 6 | B | None | |
| | | | 2 | ATU23022 | Human Rights and Democracy | حقوق الانسان و الديمقراطية | Arabic | 2 | 1 | | | | 1 | 3 | 48 | 102 | 150 | 6 | S | None |
| | | | 3 | ATU23023 | Arabic Language | اللغة العربية | Arabic | 2 | 1 | | | | | 3 | 48 | 77 | 125 | 5 | S | None |
| | | | 4 | ATU23024 | AC Electrical Circuits | دوائر التيار المتردد | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM |
| | | | 5 | ATU23025 | Integral Mathematics | الرياضيات التكاملية | English | 2 | | | | 2 | | 3 | 63 | 62 | 125 | 5 | B | LRM |
| 6 | | | ATU23026 | Computer Principles | اساسيات الحاسوب | English | 2 | | 2 | | | | 3 | 63 | 12 | 75 | 3 | B | LRM | |
| | | | | | | | | | 14 | 2 | 6 | 0 | 2 | 1 | 18 | 378 | 372 | 750 | 30 | |
| UGI | Three | 1 | ATU23031 | DC Generators | مولدات التيار المستمر | English | 2 | | 2 | | | 3 | 63 | 87 | 150 | 6 | C | LRM | | |
| | | 2 | ATU23032 | Electronic Essentials | اساسيات الاكترونيات | English | 3 | | 2 | | | | 3 | 78 | 72 | 150 | 6 | C | LRM | |
| | | 3 | ATU23033 | Electrical Circuit Analysis | تحليل الدوائر الكهربائية | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM | |
| | | 4 | ATU23034 | Sensors | المستحسسات | English | 2 | | 1 | | | | 3 | 48 | 77 | 125 | 5 | C | LRM | |
| | | 5 | ATU23035 | Applied Mathematics | الرياضيات التطبيقية | English | 2 | | | | 2 | | 3 | 63 | 62 | 125 | 5 | B | LRM | |
| | | 6 | ATU23036 | Computer Applications | تطبيقات الحاسوب | English | 2 | | 2 | | | | 3 | 63 | 12 | 75 | 3 | S | LRM | |
| | | | | | | | | 14 | 0 | 9 | 0 | 2 | 0 | 18 | 393 | 357 | 750 | 30 | | |
| | UGI | Four | 1 | ATU23041 | DC Motors | محركات التيار المستمر | English | 3 | | 2 | | | 3 | 78 | 72 | 150 | 6 | C | LRM | |
| | | | 2 | ATU23042 | Electronic Circuits | الدوائر الكترونية | English | 3 | | 2 | | | | 3 | 78 | 72 | 150 | 6 | C | LRM |
| | | | 3 | ATU23043 | Advanced Electrical Circuits Analysis | تحليل الدوائر الكهربائية متقدم | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM |
| | | | 4 | ATU23044 | Instruments and Measurements | الأجهزة والقياسات | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM |

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|-------|----------|----------|---------------------------------|--|--------------------------------|----------|-------------|-------------|------------|-----------|------------|-------------|-------------|-------------|--------------|------------|------|-------------|-----------------------------|------|
| | 5 | ATU23045 | Engineering Analysis | التحليلات الهندسية | English | 3 | | | | | | 2 | | 3 | 78 | 47 | 125 | 5 | B | LRM |
| | 6 | ATU23046 | English Language (Intermediate) | اللغة الانكليزية (مبتدئ) | English | 2 | 1 | | | | | | | 3 | 48 | 27 | 75 | 3 | S | None |
| | Total | | | | | | 17 | 1 | 8 | 0 | 2 | 0 | 18 | 438 | 312 | 750 | 30 | | | |
| Level | Semester | No. | Module Code | Module Name in English | اسم المادة التدريسية | Language | SSWL (hr/w) | | | | | | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code | |
| | | | | | | | CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | | | | | | | | |
| UGIII | Five | 1 | ATU23051 | Principles of Power Engineering | مبادئ هندسة القدرة | English | 3 | | 2 | | | | | 3 | 78 | 47 | 125 | 5 | C | LRM |
| | | 2 | ATU23052 | DC Power Conversions | مغيرات القدرة المستمرة | English | 3 | | 2 | | | | | 3 | 78 | 47 | 125 | 5 | C | LRM |
| | | 3 | ATU23053 | Electrical Transformers and Induction Machines | المحولات الكهربية والمجالات | English | 3 | | 2 | | | | | 3 | 78 | 47 | 125 | 5 | C | LRM |
| | | 4 | ATU23054 | Electromagnetic Fields | الكهر ومغناطيسية | English | 3 | 1 | | | | 1 | | 3 | 78 | 47 | 125 | 5 | C | LRM |
| | | 5 | ATU23055 | Microprocessor | المعالج الدقيق | English | 3 | | 2 | | | | | 3 | 78 | 47 | 125 | 5 | C | LRM |
| | | 6 | ATU23056 | Numerical Analysis | التحليلات العددية | English | 3 | | | | | 2 | | 3 | 78 | 47 | 125 | 5 | B | LRM |
| | Total | | | | | | 18 | 1 | 8 | 0 | 3 | 0 | 18 | 468 | 282 | 750 | 30 | | | |
| UGIII | Six | 1 | ATU23061 | Advanced Power Engineering | هندسة القدرة المتقدم | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM | |
| | | 2 | ATU23062 | AC Power Conversions | مغيرات القدرة المتناوبة | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM | |
| | | 3 | ATU23063 | Synchronous and Special Machines | المكائن التزامنية والخاصة | English | 4 | | 2 | | | | 3 | 93 | 57 | 150 | 6 | C | LRM | |
| | | 4 | ATU23064 | Digital Controllers | المسيطرات الرقمية | English | 4 | | 2 | | | | 3 | 93 | 57 | 150 | 6 | C | LRM | |
| | | 5 | ATU23065 | English Language (Advanced) | اللغة الانكليزية (مستوى متقدم) | English | 2 | 1 | | | | | 3 | 48 | 27 | 75 | 3 | S | LRM | |
| | | 6 | ATU23066 | Elective 1 | مادة اختيارية 1 | English | 2 | | 2 | | | | 3 | 63 | 62 | 125 | 5 | E | LRM | |
| | Total | | | | | | 18 | 1 | 10 | 0 | 0 | 0 | 18 | 453 | 297 | 750 | 30 | | | |
| Level | Semester | No. | Module Code | Module Name in English | اسم المادة التدريسية | Language | SSWL (hr/w) | | | | | | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code | |
| | | | | | | | CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | | | | | | | | |
| UGIV | Seven | 1 | ATU23071 | Transmission and Distribution Systems | انظمة التوزيع والنقل | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM | |
| | | 2 | ATU23072 | Electric Machine Drives | مسرقات المكائن الكهربية | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM | |
| | | 3 | ATU23073 | Power Systems Analysis | تحليل انظمة القدرة | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM | |
| | | 4 | ATU23074 | Electric Power Generation Stations | محطات توليد القدرة الكهربية | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM | |
| | | 5 | ATU23075 | Control Systems Analysis | تحليل انظمة السيطرة | English | 4 | | 2 | | | | 3 | 93 | 32 | 125 | 5 | C | LRM | |
| | | 6 | ATU23076 | Project 1 | مشروع 1 | English | | 1 | 1 | 4 | | | 3 | 93 | 32 | 125 | 5 | C | LRM | |
| | Total | | | | | | 16 | 1 | 11 | 4 | 0 | 0 | 18 | 498 | 252 | 750 | 30 | | | |
| UGIV | Semester | No. | Module Code | Module Name in English | اسم المادة التدريسية | Language | SSWL (hr/w) | | | | | | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code | |
| | | | | | | | CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | | | | | | | | |
| | | 1 | ATU23081 | Professional Ethics | اخلاقيات المهنة | Arabic | 2 | 1 | | | | | 3 | 48 | 27 | 75 | 3 | S | None | |
| | 2 | ATU23082 | Power System Protection | حماية انظمة القدرة | English | 4 | | 2 | | | | 3 | 93 | 57 | 150 | 6 | C | LRM | | |
| | 3 | ATU23083 | Stability of Power Systems | استقرار انظمة القدرة | English | 4 | | 2 | | | | 3 | 93 | 57 | 150 | 6 | C | LRM | | |

| | | | | | | | | | | | | | | | | | | | | |
|--|----------|--------------------|-------------|---------------------------|-----------------------------------|--|--------------------------------------|-------------|------------|-----------|------------|-------------------------|-------------|-------------|--------------|------------|------|------------------|-----------------------------|-----|
| | Eight | 4 | ATU23084 | High Voltage Techniques | تقنيات الضغط العالي | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | C | LRM | |
| | | 5 | ATU23085 | Project 2 | مشروع 2 | English | | 1 | 1 | 4 | | | | 3 | 93 | 32 | 125 | 5 | C | LRM |
| | | 6 | ATU23086 | Elective 2 | مادة اختيارية 2 | English | 3 | | 2 | | | | | 3 | 78 | 47 | 125 | 5 | E | LRM |
| | | Total | | | | | | 16 | 2 | 9 | 4 | 0 | 0 | 18 | 483 | 267 | 750 | 30 | | |
| Total | | | | | | | 125 | 9 | 74 | 10 | 11 | 1 | 177 | 3397 | 3803 | 7200 | 240 | Must be 240 ECTS | | |
| | Semester | No. | Module Code | Module Name in English | اسم المادة الاختيارية | Language | SSWL (hr/w) | | | | | | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code | |
| | | | | | | | CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | | | | | | | | |
| UGIII | Six | 1 | ATU23066 | Communication Systems | أنظمة الاتصالات | English | 2 | | 2 | | | | 3 | 63 | 62 | 125 | 5 | E | LRM | |
| | | 2 | ATU23066 | Digital Signal Processing | معالج الإشارة الرقمي | English | 2 | | 2 | | | | 3 | 63 | 62 | 125 | 5 | E | LRM | |
| UGIV | Eight | 3 | ATU23086 | Modeling and Simulation | النمذجة والمحاكاة | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | E | LRM | |
| | | 4 | ATU23086 | Modern Control Systems | أنظمة السيطرة المتقدمة | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | E | LRM | |
| | | 5 | ATU23086 | Sustainable Energy | الطاقات المتجددة | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | E | LRM | |
| | | 6 | ATU23086 | Industrial Management | الإدارة الصناعية والسلامة المهنية | English | 3 | | 2 | | | | 3 | 78 | 47 | 125 | 5 | E | LRM | |
| Note: The student should complete 4 weeks of Summer Internships to fulfill the requirements of the Bachelor's degree | | | | | | | | | | | | | | | | | | | | |
| Structured SWL (hr/w) type | CL | Class Lecture | | | Module type | B | Basic learning activities | | | | SWL: | Student Workload | | | | | | | | |
| | Lab | Laboratory | | | | C | Core learning activity | | | | SSWL: | Structured SWL | | | | | | | | |
| | Pr | Practical Training | | | | S | Support or related learning activity | | | | USSWL: | Unstructured SWL | | | | | | | | |
| | Tut | Tutorial | | | | E | Elective learning activity | | | | LRM: | Level Restricted Module | | | | | | | | |
| | Lect | Online lecture | | | | Note: Columns O, Q and R are programmed, protected and should not be edited. PASSWORD= 123456 | | | | | | | | | | | | | | |
| | Semn | Seminar | | | | Note: The summer training course has 8 training weeks (320 hours) [4 weeks x 5 days/week x 8 hours/day] | | | | | | | | | | | | | | |