



## خطة البحث العلمى لقسم الهندسة الكهربائية

### 1- أهداف الخطة البحثية بالاكاديمية 2021-2026:

- ACA 1: Develop innovative ideas in mathematics, physics, and chemistry.
- ACA 2: Develop innovative ideas in science and nanotechnology.
- ACA 3: Evaluate design and technology using labs, tools and user's response.
- ACA 4: Initiate a comprehensive understanding of past and present practices in design and their effect on society as a background for future development.
- ACA 5: Develop innovative ideas in material, reaction, and environmental engineering.
- ACA 6: Develop innovative ideas in electronics, communication, and radar systems.
- ACA 7: Develop innovative ideas in signal, image, and compressive sensing.
- ACA 8: Interaction with the community and the surrounding environment through participation in solving their problems using technology.
- ACA 9: Use of modern technologies to deal with companies and institutions in the formulations of programs for professional intervention with contemporary problems in the industry.
- ACA 10: Design of automatic control systems satisfying the needs of local industries.
- ACA 11: Develop innovative ideas in power electronics and renewable energy
- ACA 12: Developing programs for artificial intelligence and security systems.



## 2- محاور واتجاهات الخطة البحثية لقسم الهندسة الكهربائية 2021-2026:

### **Electronics:**

**Elec. 1:** Wave devices

**Elec. 2:** Optical electronics

### **Antennas and microwaves:**

**Ant. 1:** Communication and Radar Systems

**Ant. 2:** Cellular radio

**Ant. 3:** Aperture radar

### **Communication System Engineering:**

**Com. 1:** Space-Time Coded and Spatial modulation

**Com. 2:** MIMO transmission

**Com. 3:** OFDM/Spread spectrum

### **Security of Communication Systems**

**Sec. 1:** Human Identification

**Sec. 2:** Multibiometric Authentication

**Sec. 3:** LORA networks

### **Control Systems**

**Cont. 1:** Signal Processing Techniques

**Cont. 2:** Data Acquisition

**Cont. 3:** Embedded systems

### **Power Electronics and Renewable Energy**

**PE&RE. 1:** Electrical machines drives

**PE&RE. 2:** Renewable Energy applications

**PE&RE. 3:** Power Quality

### **Programming and algorithms**



**Prog. 1:** Machine Learning

**Prog. 2:** Neural Networks and Optimization

**Prog. 3:** IOT

## **Image processing**

**IM.P. 1:** Image Processing Techniques

**IM.P. 2:** Image Processing Applications



3- مصفوفة ارتباط الأهداف البحثية لقسم هندسة الإلكترونيات والاتصالات بالأهداف البحثية للأكاديمية  
:2021-2026

	ACA1	ACA2	ACA3	ACA4	ACA5	ACA6	ACA7	ACA8	ACA9	ACA10	ACA11	ACA12
Elec. 1	x		x			x			x			
Elec. 2		x	x			x			x			
Ant. 1		x	x			x			x	x		
Ant. 2		x	x			x			x	x		
Ant. 3		x	x			x			x	x		
Com. 1		x	x			x			x			
Com. 2		x	x			x			x			
Com. 3		x	x			x			x			
Sec. 1			x	x				x				x
Sec. 2			x	x				x				x
Sec. 3			x	x				x				x
Cont. 1			x							x	x	x
Cont. 2			x							x	x	x
Cont. 3			x							x	x	x
PE&RE. 1									x	x	x	
PE&RE. 2									x	x	x	
PE&RE. 3									x	x	x	
Prog. 1									x			x
Prog. 2									x			x
Prog. 3									x			x
IM.P. 1				x	x				x			x
IM.P. 2				x	x				x			x