



Faculty of Engineering

قسم هندسة الإلكترونيات والاتصالات الكهربائية

Department of Electronics and Electrical Communications



Tanta University

*Department of  
Electronics and Communications  
Engineering*



## On Front

### On Front

Department of Electronics and Communications Engineering is an open flour for everybody all over the worldwide. Our department at Tanta University was established in 1993. Since then, it withstands for giving the continual skills and the transform of information in Omni-fields.

## Our Mission

### Department Mission

To be the most prominent engineering communication department center for superior technical expertise and information technology.

## Our Vision

### Department Vision

Developing the environment of education, training, and research for the Department of Electronics and Electrical Communications Engineering to be able to establish our students to commensurate with the needs of the rapidly to the labor market and to ensure the rehabilitation outstanding that pushes all of the faculty and students to be initiative, leadership and excellence in community service and development environment.



## Education Objectives

### Objectives of Our Department

1. Accommodate the largest possible number of students and researchers.
2. Rehabilitation of national human resources in the field of communications, according to labor market demand quantitative and qualitative.
3. Provide training and education programs to quality and efficiency, which entitles the students to get the right job in the labor market or make it able to exercise self-employment.
4. The ability to adapt and deal successfully with the challenges and changes, based on research and applied studies.
5. Creating a safe and stimulating environment to work and learn in the communications department concerned with communications instructor and students.
6. Closer relationship and integration with the national education and training.
7. Participation in the programs of the transfer and development of technology.



Members

Members of the Department:

| No | Staff Name                                  | Affiliation        | Electronic Mail             | Mobile Number |
|----|---|--------------------|-----------------------------|---------------|
| 1  | Mustafa Mahmoud Abd El Napy                 | Prof               | mnaby@yahoo.com             |               |
| 2  | Mahmoud Ahmed Attia Ali                     | Associate Prof     | mahmoudahmedattia@yahoo.com | ٠١١٢٤٥٢٤٥٦٥   |
| 3  | Salah Abd El khany                          | Associate Prof     | salah.khamis18@yahoo.com    | ٠١١٢١٢١٥١٧٣   |
| 4  | Heba Ali El Khobby                          | Lecturer           | h_khobby@yahoo.com          | ٠١٢٢٢٨٩٧٤٢٤   |
| 5  | Entessar Saeid Gemeay                       | Lecturer           | entessar_gemeay@yahoo.com   | ٠١٠٠١٨٥١٨٤٢   |
| 6  | Amr Hiseen Hiseen Abd Allah                 | Lecturer           | amrvips@yahoo.com           | ٠١٢٢١٣١٣٢٤٠   |
| 7  | Sameh Attif Nabileon                        | Lecturer           | s.napoleon@gmail.com        | ٠١٢٨٧٠١٨٨٧٩   |
| 8  | Mustafa Lotfy Emara Ahmed                   | Teaching Assistant | mustafa.emara@gmail.com     | ٠١٠٠٦٦٤٩٥١٥   |
| 9  | Elsayed Ibrahim Mohamed Elsaidy             | Teaching Assistant | s.elsaidy@gmail.com         |               |
| 10 | Mohamed Essam Mohamed El-Sheikh             | Teaching Assistant | eng.mlessam@gmail.com       | ٠١١٤٠٠٨٩٥٠٦   |
| 11 | Mohamed Said Sayed Ahmed Abo Zeid           | Teaching Assistant | m1_saeed@yahoo.com          | ٠١٠٠٤٨٤٩٩٢٥   |
| 12 | Basmh El Dosoky Abo El Maatti               | Demonstrator       | eng_basma25@yahoo.com       | ٠١٠٦٧٤٥٩٠٢٤   |
| 13 | Samer Ibraheim Farjaly                      | Demonstrator       | eng.samer23@yahoo.com       | ٠١٠٦٠١٨٠٦٧٥   |
| 14 | Nermeen Mohamed Abd Al-Ghafour Abd Al-Shafi | Demonstrator       | n.m.abdalghafour@gmail.com  | ٠١٢٨٥٨٥٤١٦٥   |
| 15 | Basant samir abdel wahab mohamed            | Engineer           | b.s.abdelwahab@gmail.com    | ٠١١٢٠٠٥٨٥٥٩   |
| 16 | Maram Ahmed Wahba Abu El Khair              | Engineer           | eng_maram@hotmail.com       | ٠١١٢٢٩٠٣٨٠٠   |



Bachelor Courses

## Electronics and Communications Engineering

### Second Year

#### First Term

| Code       | Course Title                  | Hrs/Week  |           |           | Mark Distribution |                |              |            | Time of Written Exam |
|------------|-------------------------------|-----------|-----------|-----------|-------------------|----------------|--------------|------------|----------------------|
|            |                               | Lectures  | Tutorial  | Total     | Term Work         | Practical/Oral | Written Exam | Total      |                      |
| PME2110    | Engineering Mathematics (3) a | 3         | 2         | 5         | 40                |                | 85           | 125        | 3                    |
| EEC2103    | Electronic Circuits (1)       | 3         | 3         | 6         | 30                | 30             | 90           | 150        | 3                    |
| EPM2142    | Electromagnetic Fields        | 3         | 2         | 5         | 40                |                | 85           | 125        | 3                    |
| EEC2104    | Communication Theory          | 3         | 3         | 6         | 50                |                | 100          | 150        | 3                    |
| EEC2105    | Electronic Measurements (1)   | 3         | 3         | 6         | 30                | 30             | 90           | 150        | 3                    |
| EEC21H3    | Technical Reports             | 2         |           | 2         | 10                |                | 40           | 50         | 2                    |
| <b>Sum</b> |                               | <b>17</b> | <b>13</b> | <b>30</b> |                   |                |              | <b>750</b> |                      |

#### Second Term

| Code    | Course Title                  | Hrs/Week |          |       | Mark Distribution |                |              |       | Time of Written Exam |
|---------|-------------------------------|----------|----------|-------|-------------------|----------------|--------------|-------|----------------------|
|         |                               | Lectures | Tutorial | Total | Term Work         | Practical/Oral | Written Exam | Total |                      |
| PME2210 | Engineering Mathematics (3) b | 2        | 2        | 4     | 30                |                | 70           | 100   | 3                    |
| EEC2206 | Electronic Circuits (2)       | 3        | 3        | 6     | 30                | 30             | 90           | 150   | 3                    |
| EEC2207 | Communication Engineering     | 3        | 3        | 6     | 30                | 30             | 90           | 150   | 3                    |
| EEC2208 | Electromagnetic Waves (1)     | 3        | 2        | 5     | 40                |                | 85           | 125   | 3                    |
| CCE2251 | Control Engineering           | 3        | 1        | 4     | 30                |                | 70           | 100   | 2                    |
| EEC2209 | Electronic Measurements (2)   | 3        | 2        | 5     | 25                | 25             | 75           | 125   | 3                    |



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|     |    |    |    |  |     |  |
|-----|----|----|----|--|-----|--|
| Sum | 17 | 13 | 30 |  | 750 |  |
|-----|----|----|----|--|-----|--|



## Electronics and Communications Engineering

### Third Year

#### First Term

| Code       | Course Title                                 | Hrs/Week  |           |           | Mark Distribution |                |              |            | Time of Written Exam |
|------------|--|-----------|-----------|-----------|-------------------|----------------|--------------|------------|----------------------|
|            |  | Lectures  | Tutorial  | Total     | Term Work         | Practical/Oral | Written Exam | Total      |                      |
| PME3115    | Engineering Mathematics (4)                  | 3         | 2         | 5         | 40                |                | 85           | 125        | 3                    |
| EEC3110    | Wave Propagation and Antennas (1)            | 3         | 3         | 6         | 30                | 30             | 90           | 150        | 3                    |
| EEC3111    | Digital Electronics in Communication Systems | 3         | 3         | 6         | 30                | 30             | 90           | 150        | 3                    |
| EEC3112    | Optical Electronics                          | 3         | 3         | 6         | 50                |                | 100          | 150        | 3                    |
| ***31**    | Elective Course (1)                          | 3         | 2         | 5         | 40                |                | 85           | 125        | 3                    |
| EEC31H4    | Management and Marketing                     | 2         |           | 2         | 10                |                | 40           | 50         | 2                    |
| <b>Sum</b> |  | <b>17</b> | <b>13</b> | <b>30</b> |                   |                |              | <b>750</b> |                      |

#### Second Term

| Code       | Course Title  | Hrs/Week  |           |           | Mark Distribution |                |              |            | Time of Written Exam |
|------------|---|-----------|-----------|-----------|-------------------|----------------|--------------|------------|----------------------|
|            |   | Lectures  | Tutorial  | Total     | Term Work         | Practical/Oral | Written Exam | Total      |                      |
| EEC3213    | Optical Communications                              | 3         | 2         | 5         | 25                | 25             | 75           | 125        | 3                    |
| EEC3214    | Electromagnetic Waves (2)                           | 3         | 2         | 5         | 40                |                | 85           | 125        | 3                    |
| EEC3215    | Microprocessor Application in Communication Systems | 2         | 3         | 5         | 25                | 25             | 75           | 125        | 3                    |
| EEC32**    | Elective Course (2)                                 | 2         | 2         | 4         | 30                |                | 70           | 100        | 3                    |
| EEC3220    | Digital Communication Systems                       | 3         | 3         | 6         | 30                | 30             | 90           | 150        | 3                    |
| EEC3221    | Acoustics and Ultrasonic                            | 3         | 2         | 5         | 40                |                | 85           | 125        | 3                    |
| <b>Sum</b> |   | <b>16</b> | <b>14</b> | <b>30</b> |                   |                |              | <b>750</b> |                      |



## Electronics and Communications Engineering

### Fourth Year

#### First Term

| Code       | Course Title                      | Hrs/Week  |           |           | Mark Distribution |                |              |            | Time of Written Exam |
|------------|-----------------------------------|-----------|-----------|-----------|-------------------|----------------|--------------|------------|----------------------|
|            |                                   | Lectures  | Tutorial  | Total     | Term Work         | Practical/Oral | Written Exam | Total      |                      |
| EEC4122    | Satellite Communication Systems   | 4         | 3         | 7         | 50                |                | 125          | 175        | 3                    |
| EEC4123    | Wave Propagation and Antennas (2) | 3         | 3         | 6         | 30                | 30             | 90           | 150        | 3                    |
| EEC2124    | Telecommunication Networks        | 3         | 3         | 6         | 30                | 30             | 90           | 150        | 3                    |
| EEC41**    | Elective Course (3)               | 3         | 2         | 5         | 40                |                | 85           | 125        | 3                    |
| EEC4029    | Project                           | 1         | 3         | 4         | 40                |                |              | 40         | 3                    |
| EEC41H5    | Project Management                | 2         |           | 2         | 10                |                | 40           | 50         | 2                    |
| <b>Sum</b> |                                   | <b>16</b> | <b>14</b> | <b>30</b> |                   |                |              | <b>690</b> |                      |

#### Second Term

| Code       | Course Title                    | Hrs/Week  |           |           | Mark Distribution |                   |              |            | Time of Written Exam |
|------------|---------------------------------|-----------|-----------|-----------|-------------------|-------------------|--------------|------------|----------------------|
|            |                                 | Lectures  | Tutorial  | Total     | Term Work         | Practical/Oral    | Written Exam | Total      |                      |
| EEC4230    | Mobile Communication Systems    | 4         | 2         | 6         | 30                | 30                | 90           | 150        | 3                    |
| EEC4231    | Computer Communication Networks | 3         | 2         | 5         | 25                | 25                | 75           | 125        | 3                    |
| EEC4232    | Microwave Engineering           | 3         | 2         | 5         | 25                | 25                | 75           | 125        | 3                    |
| EEC42**    | Elective Course (4)             | 3         | 2         | 5         | 40                |                   | 85           | 125        | 3                    |
| EEC4237    | Information Theory              | 3         | 2         | 5         | 40                |                   | 85           | 125        | 3                    |
| EEC4029    | Project                         |           | 4         | 4         | 60                | 100<br>Discussion |              | 200        | 3                    |
| <b>Sum</b> |                                 | <b>16</b> | <b>14</b> | <b>30</b> |                   |                   |              | <b>850</b> |                      |





# Electronics and Communications Engineering

## Elective Courses

### Elective Course (1)

| <b>Code</b> | <b>Course Title</b>         |
|-------------|-----------------------------|
| EPM3146     | Electrical Machines         |
| EPM3147     | Power Electronics           |
| CCE3152     | PLC and Distributed Systems |
| CCE3153     | Artificial Neural Networks  |

### Elective Course (2)

| <b>Code</b> | <b>Course Title</b>                              |
|-------------|--|
| EEC3216     | Biomedical Electronics                           |
| EEC3217     | Television Engineering                           |
| EEC3218     | Digital Signal Processing and Applications       |
| EEC3219     | Large Scale Integrated Circuits and Applications |

### Elective Course (3)

| <b>Code</b> | <b>Course Title</b>                                   |
|-------------|---|
| EEC4125     | Radar Systems and Sonar                               |
| EEC4126     | Data Security   |
| EEC4127     | Micro-electronics and Applications                    |
| EEC4128     | Very Large Scale Integrated Circuits and Applications |

### Elective Course (4)

| <b>Code</b> | <b>Course Title</b>             |
|-------------|---------------------------------|
| EEC4233     | Microwave Integrated Circuits   |
| EEC4234     | Optical Networks                |
| EEC4235     | Multimedia and Image Processing |
| EEC4236     | Advanced Communications Systems |



Research Plan

| Areas (Problems) |  | Issues Relevant Research (Research Activities) |  | Research Axes (Trends of Contemporary Research) |  |
|------------------|--|--|--|---|--|
| 1                | Using Of NANO Technology and VLSI  | 1  | Improve the performance and increase the speed of electronic devices and computers and to increase the storage capacity of a compact disc          | 1   | Applications of VLSI in wireless communications Systems  |
|                  |  | 2  | The manufacture of electronic and electromechanical devices and endoscopes micro-size  | 2   | Medical NANA Reboot  |
| 2                | Using the technology of smart antennas in wireless communication systems                           | 1  | Improve the performance and increase the capacity of mobile wireless communication networks  | 1   | Digital formatting for beam antennas matrices and determining the direction of arrival of signals                                  |
|                  |  | 2  | Replacing the traditional antenna systems in transmitters by smart antennas systems  | 2   | Applications of smart antennas in systems of multiple entrances and multiple exits   |
| 3                | The development of algorithms for multimedia processing and its applications                       | 1  | Digital image processing and video signals   | 1   | Increasing the rate of data transmission through communications networks   |
|                  |  | 2  | The development of algorithms for quick implementation encryption photos and video signals   | 2   | Reducing the degree of difficulty for the encryption algorithms of multimedia  |
|                  |  | 3  | Increase security and privacy and the rate of data transmission in telecommunication networks  |   |  |
| 4                | Improve the performance of optical communication networks and components                           | 1  | Study the size of the exchange of information between colleges, other units, and university  | 1   | Analyze the impact of the large number of connections and welding of optical fibers  |
|                  |  | 2  | Information companies with specialized research centers at home and abroad   | 2   | Fiber network linking research centers via satellite   |
|                  |  | 3  | Activating and developing mechanisms for the secure exchange of documents and information  | 3   | Using frequency domain amplitude of confidentiality  |
| 5                | Improve the performance of wireless communication networks and the digital networks remote sensing | 1  | Increase the speed of the network in the transfer of audio and video signals and data  | 1   | Improve the performance of communication networks using cognitive radio technology to the participants at the same frequency space |
|                  |  | 2  | A study to improve the capacity of communication channels in mobile communications with the widening spectrum to enter multi-encrypted             | 2   | Providing developed techniques to improve performance and increase speed in the 4 <sup>th</sup> generation communication systems   |
|                  |  | 3  | The development of networks of sensors or wireless sensors and their use in important applications such as health care, energy and the environment | 3   | Concurrent use of carriers and orthogonal systems in communications with multiple entry and exit                                   |



## Research Groups

### Research Groups

#### First Group: Electronics:

- Electronic Circuits Design
- Radio Frequencies Circuit Design
- Biomedical Engineering
- Embedded Systems

#### Second Group: Microwave Engineering:

- Antennas Modeling, Analyses and Design
- Microwave Devices
- Microwave Propagations
- Radar Communications

#### Third Group: Communications Networks:

- Computer Networks
- Communications Networks
- Wireless Sensors
- Network Security

#### Forth Group: Wireless Communications:

- Mobile Communications
- Satellite Communications
- Spread Spectrum Communications

#### Fifth Group: Optical Communications:

- Optical Devices
- Optical Communications

#### Sixth Group: Signal Processing:

- Digital Signal Processing



- Speech Signal Processing
- Image Signal Processing

#### Seventh Group: Information Technology

- Multimedia

### Laboratories

#### Laboratories of the Department:

##### A-Electronics and Communications Laboratory

###### First: Electronics Laboratory

- Electronics (1) , (2) : First Year
- Electronic Measurements (1) , (2): Second Year
- Electronic Circuits (1) , (2): Second Year

###### Second: Communications Laboratory

- Communications Engineering: Second Year
- Digital Communications Systems: Third Year
- Optical Communications: Third Year
- Microwave Engineering: Forth Year

##### B-Computer and Communications Laboratory

- Applications of Microprocessor in Communication Systems: Third Year
- Computer Communications Networks: Forth Year

### Post Graduate Cources



Faculty of Engineering

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Department of Electronics and Electrical Communications



Tanta University

مقررات المستوي: الرابع

قسم: هندسة الاتصالات والإلكترونيات الكهربية

| الامتحان<br>التحريري | توزيع النسب المئوية للدرجات |             |        | عدد<br>الساعات<br>المعتمدة | عدد الساعات التدريسية |                         |        | متطلبات<br>سابقة | اسم المقرر  | الكود   |
|----------------------|-----------------------------|-------------|--------|----------------------------|-----------------------|-------------------------|--------|------------------|---|---------|
|                      | عملي/ شفوي                  | أعمال الفصل | تحريري |                            | المجموع               | درس نظري/<br>تدريب عملي | محاضرة |                  |   |         |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ الرياضيات الهندسية<br>Principles of Engineering Mathematics         | EEC 401 |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ الكهرباء والإلكترونيات<br>Principles of Electricity and Electronics | EEC 402 |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | تكنولوجيا الاجهزة الالكترونية<br>Electronic Devices Technology            | EEC 403 |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | الدوائر الالكترونية<br>Electronic Circuits                                | EEC 404 |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | اجهزة القياس الالكترونية<br>Electronic Measurements Equipments            | EEC 405 |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | الدوائر المتكاملة<br>Integrated Circuits                                  | EEC 406 |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | الإلكترونيات الطبية<br>Medical Electronics                                | EEC 407 |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | الإلكترونيات البصرية<br>Opto-Electronics                                  | EEC 408 |
| ٣                    | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ الاتصالات التناظرية<br>Principles of Analog Communication           | EEC 409 |



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مقررات المستوي: الرابع

قسم: هندسة الاتصالات والإلكترونيات الكهربية

| الامتحان<br>الزمن<br>التحريري | توزيع النسب المئوية للدرجات |             |        | عدد<br>الساعات<br>المعتمدة | عدد الساعات التدريسية |                         |        | متطلبات<br>سابقة | اسم المقرر  | الكود   |
|-------------------------------|-----------------------------|-------------|--------|----------------------------|-----------------------|-------------------------|--------|------------------|---|---------|
|                               | عملي / شفوي                 | أعمال الفصل | تحريري |                            | المجموع               | درس نظري/<br>تدريب عملي | محاضرة |                  |   |         |
| ٣                             | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ الإشارات والاحصاء<br>Principles of signals and statistics               | EEC 410 |
| ٣                             | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ الموجات الدقيقة<br>Principles of Microwave                              | EEC 411 |
| ٣                             | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ الهوائيات وانتشار الموجات<br>Principles of Antenna and Wave Propagation | EEC 412 |
| ٣                             | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ شبكات الاتصال<br>Principles of Communication Networks                   | EEC 413 |
| ٣                             | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ الاتصالات الرقمية<br>Principles of Digital Communication                | EEC 414 |
| ٣                             | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ الاتصالات البصرية<br>Principles of Optical Communication                | EEC 415 |
| ٣                             | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ اتصالات الجوال<br>Principles of Mobile Communication                    | EEC 416 |
| ٣                             | -                           | ٣٠          | ٧٠     | ٣                          | ٣                     | -                       | ٣      | --               | مبادئ اتصالات الأقمار الصناعية<br>Principles of Satellite Communication       | EEC 417 |



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مقررات المستوي: الخامس

قسم: هندسة الاتصالات والإلكترونيات الكهربية

| الكود                                 | اسم المقرر   | متطلبات سابقة | عدد الساعات التدريسية |                      |         | عدد الساعات المعتمدة | توزيع النسب المئوية للدرجات |             |            | زمن الامتحان التحريري |
|---------------------------------------|--|---------------|-----------------------|----------------------|---------|----------------------|-----------------------------|-------------|------------|-----------------------|
|                                       |  |               | محاضرة                | درس نظري/ تدريب عملي | المجموع |                      | تحريري                      | أعمال الفصل | عملي/ شفوي |                       |
| اولا: مقررات العلوم الأساسية الهندسية |  |               |                       |                      |         |                      |                             |             |            |                       |
| EEC 501                               | الرياضيات التطبيقية للمهندسين<br>Applied Mathematics for Engineers                   | --            | ٣                     | --                   | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 502                               | الصوتيات وفوق السمعيات<br>Acoustics and Ultrasonic                                   | --            | ٣                     | --                   | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 503                               | الالكترونيات التردد العالى الهندسية (١)<br>RF Electronics Engineering I              | --            | ٣                     | --                   | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 504                               | الدوائر المتكاملة التناظرية المتقدمة<br>Advanced Analog Integrated Circuits          | --            | ٣                     | --                   | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 508                               | مقدمة عن الالكترونيات الطبية والحيوية<br>Introduction to Biomedical Electronics      | --            | ٣                     | --                   | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 509                               | انتشار الموجات فى الأوساط البيولوجية<br>Wave Propagation in Biological Media         | --            | ٣                     | --                   | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 511                               | مبادئ شبكات الاتصال<br>Principles of Communication Networks                          | --            | ٣                     | --                   | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 517                               | مقدمة عن الكهرومغناطيسية الحاسوبية<br>Introduction to Computational Electromagnetics | --            | ٣                     | --                   | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |



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| الكود                | اسم المقرر   | متطلبات سابقة | عدد الساعات التدريسية |                         |         | عدد الساعات المعتمدة | توزيع النسب المئوية للدرجات |             |            | زمن الامتحان التحريري |
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| EEC 520              | مشروع بحثي Research Project                                    |               | ١                     | ٤                       | ٥       | ٣                    | ٢٠                          | ٣٠          | ٥٠         | ٢                     |
| ثانيا: باقي المقررات |  |               |                       |                         |         |                      |                             |             |            |                       |
| EEC 505              | الدوائر المتكاملة الرقمية<br>Digital Integrated Circuits       | --            | ٣                     | --                      | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 506              | الإلكترونيات الكم والبصريات<br>Quantum and Optical Electronics | --            | ٣                     | --                      | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 507              | شبكات الألياف البصرية<br>Fiber Optic Networks                  | --            | ٣                     | --                      | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 510              | نظرية الترميز وتطبيقاتها<br>Coding Theory and Applications     | --            | ٣                     | --                      | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 512              | نظرية الاتصالات الرقمية<br>Digital Communication Theory        | --            | ٣                     | --                      | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | ٣                     |
| EEC 513              | شبكات اتصال الحاسبات<br>Computer Communication Networks        | --            | ٣                     | --                      | ٣       | ٣                    | ٧٠                          | ٣٠          | -          | -                     |





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| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | --                   | ٣      | --            | معالجة الإشارات وتطبيقاته<br>Signal Processing and Applications                  | EEC 514 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | --                   | ٣      | --            | معالجة الصور الرقمية<br>Digital Image Processing                                 | EEC 515 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | --                   | ٣      | --            | تصميم الميكروويف<br>Microwave Design   | EEC 516 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | --                   | ٣      | --            | قياسات الميكروويف<br>Microwave Measurements                                      | EEC 518 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | --                   | ٣      | --            | نظرية المجالات الكهرومغناطيسية المتقدمة<br>Advanced Electromagnetic Field Theory | EEC 519 |



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| اولا: مقررات العلوم الهندسية الاساسية |                             |             |            |                      |                       |                      |        |               |  |         |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | مبادئ فوق الصوتيات وتطبيقاتها<br>Acoustics Devices And Application         | EEC 601 |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | الدوائر المتكاملة الرقمية المتقدمة<br>Advanced Digital Integrated Circuits | EEC 602 |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | الشبكات اللاسلكية<br>Wireless Networks                                     | EEC 608 |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | الاتصالات الشخصية واتصالات الجوال<br>Personal and Mobile Communications    | EEC 609 |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | معالجة الاشارات المتكيفة<br>Adaptive Signal Processing                     | EEC 614 |
| ثانيا: باقي المقررات                  |                             |             |            |                      |                       |                      |        |               |  |         |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | هندسة الكترونييات ترددات الراديو ٢<br>RF Electronics Engineering II        | EEC 603 |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | البصرييات المتكاملة<br>Integrated optics                                   | EEC 605 |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | معدات الكترونييات الطب الحيوي<br>Biomedical Electronics Equipments         | EEC 606 |
| ٣                                     | -                           | ٣٠          | ٧٠         | ٣                    | ٣                     | -                    | ٣      | --            | امن شبكات الحاسب<br>Computer Network Security                              | EEC 613 |



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| ٣                         | ٧٠                          | ٣٠          | -          | ٣                    | ٣                     | -                    | ٣      | --            | اجهزة ودوائر الموجات الدقيقة<br>Microwave Devices and Circuits                         | EEC 616 |
| ٣                         | ٧٠                          | ٣٠          | -          | ٣                    | ٣                     | -                    | ٣      | --            | تصميم الدوائر المتكاملة بمساعدة الحاسب<br>Computer-Aided Design of Integrated Circuits | EEC 604 |
| ٣                         | ٧٠                          | ٣٠          | -          | ٣                    | ٣                     | -                    | ٣      | --            | نظم التصوير الطبي<br>Medical Imaging Systems   | EEC 607 |
| ٣                         | ٧٠                          | ٣٠          | -          | ٣                    | ٣                     | -                    | ٣      | --            | الامن والتشفير<br>Cryptography and Security  | EEC 610 |
| ٣                         | ٧٠                          | ٣٠          | -          | ٣                    | ٣                     | -                    | ٣      | --            | نظرية المعلومات والترميز والتشفير<br>Information Theory, Coding, and Cryptography      | EEC 611 |
| ٣                         | ٧٠                          | ٣٠          | -          | ٣                    | ٣                     | -                    | ٣      | --            | شبكة الاستشعار<br>Sensor Networks  | EEC 612 |
| ٣                         | ٧٠                          | ٣٠          | -          | ٣                    | ٣                     | -                    | ٣      | --            | المعالجة المكانية للمصفوفات<br>Spatial Array Processing                                | EEC 615 |



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| اولا: المقررات الهندسية الأساسية |                             |             |        |                      |                       |                       |        |               |   |         |
| ٣                                | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | تصميم الدوائر المتكاملة اللاسلكية<br>Wireless IC Design                                   | EEC 701 |
| ٣                                | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في الاتصالات البصرية<br>Selected Topics in Optical Communication            | EEC 706 |
| ٣                                | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في الاتصالات اللاسلكية<br>Selected Topics in Wireless Communications        | EEC 707 |
| ٣                                | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في اتصالات الوسائط المتعددة<br>Selected Topics in Multimedia Communications | EEC 710 |
| ثانيا: باقي المقررات             |                             |             |        |                      |                       |                       |        |               |   |         |
| ٣                                | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | الاستشعار عن بعد<br>Remote sensing  | EEC 702 |
| ٣                                | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | البصريات اللاخطية<br>Nonlinear Optics   | EEC 705 |
| ٣                                | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | التشتت الكهرومغناطيسي<br>Electromagnetic Scattering                                       | EEC 703 |
| ٣                                | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في شبكات الاتصال<br>Selected Topics in Communication Networks               | EEC 709 |



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| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في شبكات الاستشعار<br>Selected topics in Sensor Networks                                       | EEC 711 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في الطرق العددية للكهرودمغناطيسية<br>Selected Topics in Numerical Methods for Electromagnetics | EEC 715 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | هوائيات الموجات القصيرة<br>Microwave Antennas  | EEC 704 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في الامن والتشفير<br>Selected Topics in Security and Encryption                                | EEC 708 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في اتصالات الحيز الترددي البالغ الاتساع<br>Selected Topics in UWB                              | EEC 712 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في معالجة الإشارة<br>Selected Topics in Signal Processing                                      | EEC 713 |
| ٣                         | -                           | ٣٠          | ٧٠     | ٣                    | ٣                     | -                     | ٣      | --            | مواضيع مختارة في مصفوفات الهوائيات<br>Selected Topics in Antenna Arrays                                      | EEC 714 |