

## Undergraduate Curriculum for Sessions 2017 & 2018

### 1<sup>st</sup> Semester

| Sr. No.               | Course Code | Course Title              | Credit Hours     | Knowledge Area/ Category | Pre-requisite Courses (if any) |
|-----------------------|-------------|---------------------------|------------------|--------------------------|--------------------------------|
| 1                     | MGT102      | Sociology                 | (2-0-2)          | H                        |                                |
| 2                     | CS141       | Introduction to Computing | (2-1-3)          | C                        |                                |
| 3                     | HU1XX       | International Language    | (0-0-0)          | SS                       |                                |
| 4                     | MA123       | Calculus                  | (3-0-3)          | M                        |                                |
| 5                     | ME100L      | Workshop Practice         | (0-1-1)          | E                        |                                |
| 6                     | ME 102      | Applied Thermodynamics    | (3-1-4)          | E                        |                                |
| 7                     | PHY111      | Applied Physics           | (2-1-3)          | S                        |                                |
| <b>Total Cr. Hrs.</b> |             |                           | <b>(12-4-16)</b> |                          |                                |

### 2<sup>nd</sup> Semester

| Sr. No.               | Course Code | Course Title                      | Credit Hours     | Knowledge Area/ Category | Pre-requisite Courses (if any) |
|-----------------------|-------------|-----------------------------------|------------------|--------------------------|--------------------------------|
| 1                     | EE100       | Electric Circuits                 | (3-1-4)          | E                        |                                |
| 2                     | IS101       | Islamic & Pak Studies I / Ethics  | (3-0-3)          | H                        |                                |
| 3                     | ME124L      | Engineering Drawing               | (0-1-1)          | E                        |                                |
| 4                     | EE101       | Electrical & Electronics Workshop | (0-1-1)          | E                        |                                |
| 5                     | MA228       | Differential equations            | (3-0-3)          | M                        |                                |
| 6                     | HU111       | Communication Skills              | (0-1-1)          | H                        |                                |
| 7                     | EE170       | Programming Fundamentals          | (2-1-3)          | C                        |                                |
| <b>Total Cr. Hrs.</b> |             |                                   | <b>(11-5-16)</b> |                          |                                |

### 3<sup>rd</sup> Semester

| Sr. No.               | Course Code | Course Title                            | Credit Hours     | Knowledge Area/ Category | Pre-requisite Courses (if any) |
|-----------------------|-------------|---|------------------|--------------------------|--------------------------------|
| 1                     | EE212       | Semiconductor Devices                   | (3-1-4)          | E                        |                                |
| 2                     | EE110       | Circuit Analysis & Design               | (3-1-4)          | E                        |                                |
| 3                     | EE272       | Digital Systems                         | (3-1-4)          | E                        |                                |
| 4                     | HU221       | Technical Writing & Presentation Skills | (3-0-3)          | H                        |                                |
| 5                     | MA234       | Linear Algebra                          | (3-0-3)          | M                        |                                |
| <b>Total Cr. Hrs.</b> |             |   | <b>(15-3-18)</b> |                          |                                |

### 4<sup>th</sup> Semester

| Sr. No.               | Course Code | Course Title                         | Credit Hours     | Knowledge Area/ Category | Pre-requisite Courses (if any) |
|-----------------------|-------------|--------------------------------------|------------------|--------------------------|--------------------------------|
| 1                     | EE213       | Analog & Digital Electronic Circuits | (3-1-4)          | E                        |                                |
| 2                     | EE220       | Signals & Systems                    | (3-0-3)          | E                        |                                |
| 3                     | MA346       | Numerical Methods                    | (3-0-3)          | M                        |                                |
| 4                     | EE232       | Data Structures and Algorithms       | (3-1-4)          | C                        |                                |
| 5                     | EE250       | Electric Machinery Fundamentals      | (3-1-4)          | E                        |                                |
| <b>Total Cr. Hrs.</b> |             |                                      | <b>(15-3-18)</b> |                          |                                |

5<sup>th</sup> Semester

| Sr. No.               | Course Code | Course Title           | Credit Hours     | Knowledge Area/ Category | Pre-requisite Courses (if any) |
|-----------------------|-------------|------------------------|------------------|--------------------------|--------------------------------|
| 1                     | EE273       | Microprocessor Systems | (3-1-4)          | E                        |                                |
| 2                     | EE340       | Control Systems        | (3-1-4)          | E                        |                                |
| 3                     | EE302       | Applied probability    | (3-0-3)          | E                        |                                |
| 4                     | EE357       | Power System Analysis  | (3-1-4)          | E                        |                                |
| 5                     | EE380       | Electromagnetic Theory | (3-0-3)          | E                        |                                |
| <b>Total Cr. Hrs.</b> |             |                        | <b>(15-3-18)</b> |                          |                                |

6<sup>th</sup> Semester

| Sr. No.               | Course Code | Course Title                            | Credit Hours     | Knowledge Area/ Category | Pre-requisite Courses (if any) |
|-----------------------|-------------|---|------------------|--------------------------|--------------------------------|
| 1                     | EE322       | Analog & Digital Communications         | (3-1-4)          | E                        |                                |
| 2                     | EE384       | Digital Signal Processing               | (3-1-4)          | E                        |                                |
| 3                     | EE312       | Power Electronics                       | (3-1-4)          | E                        |                                |
| 4                     | EE300L      | Embedded Systems Laboratory             | (0-1-1)          | E                        |                                |
| 5                     | IME251      | Social & Ethical Aspects in Engineering | (2-0-2)          | E                        |                                |
| 6                     | EE358       | Power Distribution Systems              | (3-0-3)          | E                        |                                |
| <b>Total Cr. Hrs.</b> |             |   | <b>(14-4-18)</b> |                          |                                |

7<sup>th</sup> Semester

| Sr. No.               | Course Code | Course Title                      | Credit Hours     | Knowledge Area/ Category | Pre-requisite Courses (if any) |
|-----------------------|-------------|-----------------------------------|------------------|--------------------------|--------------------------------|
| 1                     | EE          | Elective                          | (3-1-4)          | E                        |                                |
| 2                     | EE          | Elective                          | (3-1-4)          | E                        |                                |
| 3                     | MGT211      | Principles of Management          | (3-0-3)          | Mg                       |                                |
| 4                     | IS201       | Islamic and Pak Studies-II/Ethics | (3-0-3)          | H                        |                                |
| 5                     | EE499a      | Project (Phase-I)                 | (0-3-3)          | E                        |                                |
| <b>Total Cr. Hrs.</b> |             |                                   | <b>(12-5-17)</b> |                          |                                |

8<sup>th</sup> Semester

| Sr. No.               | Course Code | Course Title                     | Credit Hours    | Knowledge Area/ Category | Pre-requisite Courses (if any) |
|-----------------------|-------------|----------------------------------|-----------------|--------------------------|--------------------------------|
| 1                     | EE          | Elective                         | (3-1-4)         | E                        |                                |
| 2                     | EE          | Elective                         | (3-1-4)         | E                        |                                |
| 3                     | MGT         | Restricted Elective (Management) | (3-0-3)         | Mg                       |                                |
| 4                     | EE499b      | Project (Phase-II)               | (0-3-3)         | E                        |                                |
| <b>Total Cr. Hrs.</b> |             |                                  | <b>(9-5-14)</b> |                          |                                |

## Restricted Electives (Management)

| Sr. No. | Course Code | Course Title | Knowledge Area/Category |
|---------|-------------|--------------|-------------------------|
|---------|-------------|--------------|-------------------------|

|   |        |  |   |
|---|--------|--|---|
| 1 | MGT310 | Production & Operations Management           | M |
| 2 | MGT313 | Total Quality Management                     | M |
| 3 | MGT410 | Project Management                           | M |
| 4 | MGT414 | Entrepreneurship & Small Business Management | M |
| 5 | MGT460 | Engineering Economics                        | M |

### List of Electives

C-core = Computer core, C-opt =

Computer Optional

E-core = Electronics core , E-opt =

Electronics Optional

P-core = Power core, P-opt = Power

Optional

| Sr<br>·<br>No. | Course<br>Code | Course Title                            | Area of<br>Specializat<br>ion/Core | Knowl<br>edge<br>Area/<br>Catego<br>ry | Pre-requisite Courses<br>(if any)                 |
|----------------|----------------|---|------------------------------------|--|---|
| 1              | EE411          | Industrial Control Systems              | E-opt                              | E                                      |   |
| 2              | EE450          | High Voltage Engineering                | P-core                             | E                                      |   |
| 3              | EE412          | Integrated Electronic Circuits          | E-core                             | E                                      |   |
| 4              | EE431          | Operating Systems                       | E,C-core,E-<br>opt                 | E                                      |   |
| 5              | EE453          | Power System Operation & Control        | P-core                             | E                                      | EE451 Power System<br>Analysis & Design           |
| 6              | EE454          | Power System Protection                 | P-core                             | E                                      | EE451 Power System<br>Analysis & Design           |
| 7              | EE461          | Design of Electrical Machines           | P-core                             | E                                      |   |
| 8              | EE491          | Electrical Instruments and Measurements | E-opt                              | E                                      |   |
| 9              | EE424          | Satellite Engineering                   | E-core                             | E                                      |   |
| 10             | EE425          | Wireless Communications                 | E-core                             | E                                      | EE384 Digital Signal<br>Processing                |
| 11             | EE426          | Digital Image Processing                | E-opt                              | E                                      |   |
| 12             | EE432          | Computer Networks                       | C-core, E-<br>opt                  | E                                      |   |
| 13             | EE436          | Database Engineering                    | C-core                             | E                                      |   |
| 14             | EE439          | Introduction to Machine Learning        | C-core                             | E                                      |   |
| 15             | EE452          | (Renewable) Electrical Energy Systems   | P-core                             | E                                      |   |
| 16             | EE456          | Introduction to Smart Grids             | P-opt                              | E                                      |   |
| 17             | EE475          | Computer Architecture                   | C-core, E-<br>opt                  | E                                      |   |
| 18             | EE476          | Introduction to VLSI Systems            | E-core, C-<br>opt                  | E                                      |   |
| 19             | EE477          | Software Construction                   | C-opt                              | E                                      |   |
| 20             | EE481          | Optical Circuits & Systems              | C-opt                              | E                                      |   |
| 21             | EE482          | Microwave Engineering-Passive Devices   | E-core                             | E                                      |   |
| 22             | EE484          | Microwave Engineering-Active Devices    | E-core                             | E                                      | EE482 Microwave<br>Engineering Passive<br>Devices |
| 23             | EE485          | Electromagnetic Compatibility           | E-opt                              | E                                      |   |
| 24             | EE460          | Electrical Drives                       | P-core                             | E                                      |   |
| 25             | EE483          | Antenna Systems                         | E-core                             | E                                      |   |