



**THE HASHEMITE UNIVERSITY**  
**Faculty of Engineering**  
**Department of Industrial Engineering**

**Curriculum 2015**

The requirements for conferring of the Bachelor's degree in Industrial Engineering are:

- Minimum total Credit Hours (CH) of (160) according to the following study plan.
- The detailed distribution of the minimum credit hours required is shown below:

|                                | <b>Credit Hours</b> |
|--------------------------------|---------------------|
| <b>University Requirements</b> | <b>27</b>           |
| 1. Compulsory                  | 12                  |
| 2. Electives                   | 15                  |
| <b>College Requirements</b>    | <b>33</b>           |
| 1. Compulsory                  | 33                  |
| 2. Electives                   | 0                   |
| <b>Department Requirements</b> | <b>100</b>          |
| 1. Compulsory                  | 88                  |
| 2. Electives                   | 12                  |
| <b>Free Elective</b>           | <b>-</b>            |
| <b>Total</b>                   | <b>160</b>          |

### The indications of the course subject's digits

| Specialization                         | Field number |
|--|--------------|
| General engineering                    | 0            |
| Faculty requirement                    | 1            |
| Manufacturing process and measurements | 2            |
| Managements and planning of production | 3            |
| Statistics and operational research    | 4            |
| Materials science and engineering      | 5            |
| Automation and control                 | 6            |
| Graduation project                     | 7            |
| General engineering                    | 8            |
| Faculty requirement                    | 9            |

### Example

| Industrial Automation |         |   |            |   |       | 110403464 |          |
|-----------------------|---------|---|------------|---|-------|-----------|----------|
| 11                    | 0       | 4 | 0          | 3 | 4     | 6         | 4        |
| Plan Year             | Faculty |   | Department |   | Level | Field     | Sequence |

**First: University requirements (Twenty Seven (27) credit hours) as follows:**

**a- Compulsory University Requirements: (12) Twelve credit hours as follows:**

| Course No. | Course Title          | Detailed Distribution of Credit Hours |           | Credit Hours | Prerequisite or Co-requisite*               |
|------------|-----------------------|---------------------------------------|-----------|--------------|---|
|            |                       | Lecture                               | Practical |              |   |
| 111404117  | Military Sciences     | 3                                     | -         | 3            | --  |
| 111404118  | Citizenship Education | 3                                     | -         | 3            | --  |
| 111405101  | Arabic Language       | 3                                     | -         | 3            | Level test in Arabic language or 111405098  |
| 111405110  | English Language      | 3                                     | -         | 3            | Level test in English language or 111405099 |

**b- Elective University Requirements: (15) Fifteen Credit hours chosen from the following list:**

| Course No. | Course Title                               | Detailed Distribution of Credit Hours |           | Credit Hours | Prerequisite or Co-requisite* |
|------------|--|---------------------------------------|-----------|--------------|-------------------------------|
|            |  | Lecture                               | Practical |              |                               |
| 111404110  | Islam and contemporary issues              | 3                                     | -         | 3            | -                             |
| 111404111  | Islamic thought                            | 3                                     | -         | 3            | -                             |
| 111404112  | Jerusalem history and civilization         | 3                                     | -         | 3            | -                             |
| 111404113  | Principles of Art and Beauty in Literature | 3                                     | -         | 3            | -                             |
| 111404114  | History and Civilization of Jordan         | 3                                     | -         | 3            | -                             |
| 111405102  | Applied Arabic Language                    | 3                                     | -         | 3            | -                             |
| 111405111  | Applied English Language                   | 3                                     | -         | 3            | -                             |
| 111405112  | Technical translation                      | 3                                     | -         | 3            | -                             |
| 111404101  | Student and university                     | 3                                     | -         | 3            | -                             |
| 111404102  | Introduction to Psychology                 | 3                                     | -         | 3            | -                             |
| 111404103  | Life skills                                | 3                                     | -         | 3            | -                             |
| 111404104  | Family and raising children                | 3                                     | -         | 3            | -                             |
| 111404115  | Sociology                                  | 3                                     | -         | 3            | -                             |
| 111404116  | Archeology and Tourism                     | 3                                     | -         | 3            | -                             |
| 111404120  | Economics and Management                   | 3                                     | -         | 3            | -                             |
| 111404121  | Law in our lives                           | 3                                     | -         | 3            | -                             |
| 110108104  | Energy sources                             | 3                                     | -         | 3            | -                             |
| 110108113  | Biotechnology and the                      | 3                                     | -         | 3            | -                             |

|           |                                    |   |   |   |   |
|-----------|------------------------------------|---|---|---|---|
|           | community                          |   |   |   |   |
| 110108114 | The basics of automotive mechanics | 3 | - | 3 | - |
| 110108115 | Computer ethics                    | 3 | - | 3 | - |
| 110108130 | Promoting health and nutrition     | 3 | - | 3 | - |
| 110108131 | Health culture and first aid       | 3 | - | 3 | - |
| 110108132 | Sports and Health                  | 3 | - | 3 | - |
| 110108133 | Environmental awareness            | 3 | - | 3 | - |

**Second: College Requirements: (33)** Thirty three Credit Hours as shown in the following table:

| Course No. | Course Title                         | Detailed Distribution of Credit Hours |           | Credit Hours | Prerequisite or Co-requisite*              |
|------------|--------------------------------------|---------------------------------------|-----------|--------------|--|
|            |                                      | Lecture                               | Practical |              |  |
| 110101102  | Calculus 2                           | 3                                     | -         | 3            | 110108101                                  |
| 110101201  | Calculus 3                           | 3                                     | -         | 3            | 110101102                                  |
| 110101203  | Ordinary differential equations 1    | 3                                     | -         | 3            | 110101102                                  |
| 110102101  | General Physics (1)                  | 3                                     | -         | 3            | -  |
| 110102102  | General Physics (2)                  | 3                                     | -         | 3            | 110102101                                  |
| 110102103  | General Physics lab 1                | -                                     | 3         | 1            | 110102101-Parallel                         |
| 110103107  | Engineering Chemistry Principles     | 3                                     | -         | 3            | -  |
| 110103108  | Engineering Chemistry Principles lab | -                                     | 3         | 1            | 110103107-Parallel                         |
| 110108101  | Calculus 1                           | 3                                     | -         | 3            | -  |
| 110108112  | Computer Programming                 | 3                                     | -         | 3            | Level test in computer skills or 110108099 |
| 110400101  | Engineering Workshop                 | 0.5                                   | 2         | 1            | -  |
| 110400201  | Manual Engineering Drawing           | 1                                     | 3         | 2            | -  |
| 110400202  | Computer Aided Engineering Drawing   | -                                     | 3         | 1            | 110400201                                  |
| 110400203  | Ethics and Communication Skills      | 3                                     | -         | 3            | 111405110                                  |

**Third: Department Requirements: (100)** One hundred Credit Hours as Follows:

**a. Compulsory Requirements: (88)** Eighty Eight Credit Hours as shown in the following table:

| Course No. | Course Title                 | Detailed Distribution of Credit Hours |           | Credit Hours | Prerequisite or Co-requisite* |
|------------|------------------------------|---------------------------------------|-----------|--------------|-------------------------------|
|            |                              | Lecture                               | Practical |              |                               |
| 110401211  | Statics                      | 3                                     | -         | 3            | 110108101 and 110102101       |
| 110402212  | Strength of Materials        | 3                                     | -         | 3            | 110401211                     |
| 110402231  | Dynamics                     | 3                                     | -         | 3            | 110401211                     |
| 110402303  | Numerical Analysis           | 3                                     | -         | 3            | 110101203 and 110108112       |
| 110402330  | Strength of Materials lab.   | -                                     | 3         | 1            | 110402212 or 110401214        |
| 110402481  | Thermo Fluids                | 3                                     | -         | 3            | 110102101 and 110406260       |
| 110402482  | Thermofluids Lab             | -                                     | 3         | 1            | 110402481                     |
| 110403242  | Statistics and Probabilities | 3                                     | -         | 3            | 110101102                     |

|            |  |   |   |   |   |
|------------|--|---|---|---|---|
| 110403302  | Engineering Economy                        | 3 | - | 3 | 110403242   |
| 110403324  | Manufacturing Processes 1                  | 3 | - | 3 | 110402212 and<br>110400101  |
| 110403325  | Manufacturing Processes lab.               | - | 3 | 1 | 110403324   |
| 110403341  | Operations Research 1                      | 3 | - | 3 | 110101201   |
| 110403344  | Statistical Analysis                       | 3 | - | 3 | 110403242   |
| 110403352  | Properties of Materials                    | 3 | - | 3 | 110103107   |
| 110403353  | Properties of Materials lab.               | - | 3 | 1 | 110403352   |
| 110403400  | Practical Training                         | - | - | 3 | The student should<br>pass (112) credit hours<br>from the curriculum<br>including 110400203.                                |
| 110403427  | Fundamentals of Machine<br>Elements Design | 3 | - | 3 | 110402212   |
| 110403428  | Metrology                                  | 3 | - | 3 | 110406229   |
| 110403429  | Metrology lab.                             | - | 3 | 1 | 110403428 or parallel   |
| 110403436  | Production Planning and<br>Control         | 3 | - | 3 | 110403341<br>Operations Research 1  |
| 110403442  | Quality Control                            | 3 | - | 3 | 110403242   |
| 110403464  | Industrial Automation                      | 3 | - | 3 | 110405331   |
| 110403465  | Industrial Automation Lab.                 | - | 3 | 1 | 110403464 or parallel   |
| 1704031511 | Facilities planning and<br>Design          | 3 | - | 3 | 110403436   |
| 110403531  | Human Factors Engineering                  | 3 | - | 3 | 110403242   |
| 110403532  | Human Factors Engineering<br>lab.          | - | 3 | 1 | 110403531   |
| 110403541  | Simulation                                 | 3 | - | 3 | 110403341   |
| 110403543  | Operations Research 2                      | 3 | - | 3 | 110403341 and<br>110403242  |
| 110403571  | Graduation Project 1                       | - | 3 | 1 | The student should<br>pass (120) credit hours<br>from the curriculum<br>including 110403324,<br>110403436 and<br>110403442. |
| 110403572  | Graduation Project 2                       | - | 6 | 2 | 110403571   |
| 110405331  | Automatic Control                          | 3 | - | 3 | 110101203   |
| 110405332  | Automatic Control Lab                      | - | 3 | 1 | 110405331   |
| 110406229  | Fundamentals of Electrical<br>Circuits     | 3 | - | 3 | 110102102 and<br>110101102  |
| 110406260  | Applied Mathematics                        | 3 | - | 3 | 110101203   |
| 110409348  | Introduction to Electronics                | 2 | - | 2 | 110406229   |
| 110409363  | Principles of Electrical<br>Machines       | 2 | - | 2 | 110406229   |
| 110409364  | Electronics and Electrical<br>Machines Lab | - | 3 | 1 | 110409348 and<br>110409363  |

**b. Elective Requirements:** (12) Twelve Credit Hours selected from the following table:

| Course No. | Course Title                     | Detailed Distribution<br>of Credit Hours |           | Credit<br>Hours | Prerequisite or<br>Co-requisite* |
|------------|----------------------------------|--|-----------|-----------------|----------------------------------|
|            |                                  | Lecture                                  | Practical |                 |                                  |
| 110403533  | Safety Engineering               | 3  | -         | 3               | -                                |
| 110403331  | Cost Analysis                    | 3  | -         | 3               | 110101102                        |
| 110403426  | Manufacturing Processes 2        | 3  | -         | 3               | 110403324                        |
| 110403521  | Industrial Engineering<br>Design | 3  | -         | 3               | 110403427 and<br>110403561       |
| 110403534  | Total Quality Management         | 3  | -         | 3               | 110403442                        |
| 110403535  | Product Development              | 3  | -         | 3               | 110403302 and                    |

|           |  |   |   |   |                         |
|-----------|--|---|---|---|-------------------------|
|           |  |   |   |   | 110403436               |
| 110403536 | Time and Motion Study                    | 3 | - | 3 | 110403531 and 110403242 |
| 110403537 | Project Management                       | 3 | - | 3 | 110403341 and 110403242 |
| 110403542 | Decision Analysis                        | 3 | - | 3 | 110403341 and 110403302 |
| 110403561 | CAD/CAM                                  | 2 | 3 | 3 | 110403426               |
| 110403581 | Special Topics in Industrial Engineering | 3 | - | 3 | Department approval     |

**Fourth: Free Elective courses: 0 credits**

**Fifth: Practical Training:** A practical training for a period of eight weeks (40 hours per week) in any private or public organizations inside or outside Jordan that works in the area of Industrial Engineering. The student should pass (112) credit hours from the curriculum including 110400203 before training.