

# COURSE STRUCTURE

## 2025-10150 Process Automation Engineering (EN) Bachelor

| 1            |             |                                      |    |     |      | 2            |             |                                                     |    |     |      |
|--------------|-------------|--------------------------------------|----|-----|------|--------------|-------------|-----------------------------------------------------|----|-----|------|
| №            | Course code | Title                                | Th | Pr  | Ects | №            | Course code | Title                                               | Th | Pr  | Ects |
| 1            | ME 127      | Engineering and computer graphics    | 2  | 0+1 | 6    | 1            | MATH 295    | Mathematical analysis- 2                            | 2  | 1+0 | 4    |
| 2            | MATH 137    | Linear algebra and analytic geometry | 2  | 1+0 | 4    | 2            | COMP 164    | Computer technologies and programming               | 3  | 1+1 | 7    |
| 3            | MATH 192    | Mathematical analysis- 1             | 2  | 1+0 | 4    | 3            | PHYS 127    | Applied Physics                                     | 2  | 1+1 | 6    |
| 4            | PHYS 150    | Fundamentals of Physics              | 2  | 0+1 | 6    | 4            | TRX 111     | History of Azerbaijan                               | 2  | 2+0 | 5    |
| 5            | XXX XXX     | [ <b>NAE</b> ] Foreign language II   | 0  | 6+0 | 5    | 5            | XXX XXX     | [ <b>NAE</b> ] Non-Area Elective Course I <b>#1</b> | 1  | 1+0 | 3    |
| 6            | XXX XXX     | [ <b>NAE</b> ] Foreign language I    | 0  | 6+0 | 5    | 6            | XXX XXX     | [ <b>NAE</b> ] Foreign language III                 | 0  | 6+0 | 5    |
| Subtotal: 30 |             |                                      |    |     |      | Subtotal: 30 |             |                                                     |    |     |      |

### 3

| № | Course code | Title                                                           | Th | Pr  | Ects |
|---|-------------|-----------------------------------------------------------------|----|-----|------|
| 1 | EE 203      | Circuit Theory-1                                                | 2  | 1+1 | 6    |
| 2 | CHE 180     | Chemistry                                                       | 2  | 0+1 | 5    |
| 3 | ME 219      | Engineering mechanics                                           | 3  | 1+0 | 6    |
| 4 | AZD 140     | Official and Academic Communication in the Azerbaijani language | 0  | 2+0 | 4    |
| 5 | MM 120      | Civil Defence                                                   | 3  | 0+0 | 3    |
| 6 | XXX XXX     | <b>[AE]</b> Area Elective Course III <b>#3</b>                  | 2  | 2+0 | 6    |

*Subtotal: 30*

### 4

| № | Course code | Title                                         | Th | Pr  | Ects |
|---|-------------|-----------------------------------------------|----|-----|------|
| 1 | EE 207      | Circuit Theory-2                              | 2  | 1+1 | 5    |
| 2 | ELC 204     | Analog electronics                            | 2  | 0+2 | 6    |
| 3 | PAE 208     | Programmable logic controller (PLC)           | 3  | 1+1 | 7    |
| 4 | MATH 255    | Applied mathematics                           | 2  | 1+0 | 4    |
| 5 | XXX XXX     | <b>[AE]</b> Area Elective Course IV <b>#4</b> | 3  | 1+2 | 8    |

*Subtotal: 30*

## 5

| № | Course code | Title                                                | Th | Pr  | Ects |
|---|-------------|------------------------------------------------------|----|-----|------|
| 1 | PAE 318     | Automatic control theory                             | 3  | 1+2 | 8    |
| 2 | ELC 304     | Digital electronics                                  | 2  | 0+2 | 6    |
| 3 | XXX XXX     | <b>[ NAE ]</b> Non-Area Elective Course II <b>#2</b> | 1  | 1+0 | 3    |
| 4 | XXX XXX     | <b>[ AE ]</b> Area Elective Course V <b>#5</b>       | 3  | 1+1 | 7    |
| 5 | XXX XXX     | <b>[ AE ]</b> Area Elective Course VI <b>#6</b>      | 2  | 1+1 | 6    |

*Subtotal: 30*

## 6

| № | Course code | Title                                                     | Th | Pr  | Ects |
|---|-------------|-----------------------------------------------------------|----|-----|------|
| 1 | PAE 301     | Fundamentals of measurement technologies                  | 2  | 0+2 | 6    |
| 2 | PAE 304     | Microprocessors and programmable logic integrated circuit | 3  | 1+2 | 7    |
| 3 | PAE 306     | Digital control                                           | 2  | 1+2 | 7    |
| 4 | XXX XXX     | <b>[ AE ]</b> Area Elective Course VII <b>#7</b>          | 0  | 2+0 | 3    |
| 5 | XXX XXX     | <b>[ AE ]</b> Area Elective Course VIII <b>#8</b>         | 2  | 1+2 | 7    |

*Subtotal: 30*

## 7

| № | Course code | Title                                 | Th | Pr  | Ects |
|---|-------------|---------------------------------------|----|-----|------|
| 1 | PAE 427     | Industrial automation                 | 3  | 1+1 | 7    |
| 2 | XXX XXX     | <b>[ AE ]</b> Area Elective Course X  | 0  | 2+0 | 3    |
| 3 | XXX XXX     | <b>[ AE ]</b> Area Elective Course V  | 3  | 2+2 | 10   |
| 4 | XXX XXX     | <b>[ AE ]</b> Area Elective Course IX | 3  | 2+2 | 10   |

*Subtotal: 30*

## 8

| № | Course code | Title           | Th | Pr  | Ects |
|---|-------------|-----------------|----|-----|------|
| 1 | PAE 490     | Internship      | 0  | 0+0 | 21   |
| 2 | PAE 497     | Graduation Work | 0  | 0+0 | 9    |

*Subtotal: 30*

Total ECTS credits: **240**

**AE - Area Elective Courses**

| No | Course code | Title                                                      | Th | Pr  | Ects |
|----|-------------|------------------------------------------------------------|----|-----|------|
| 1  | IT 217      | Data structure and algorithms                              | 2  | 2+0 | 6    |
| 2  | PAE 203     | Process modeling and simulation                            | 2  | 2+0 | 6    |
| 3  | PAE 201     | Machine learning in automation                             | 2  | 2+0 | 6    |
| 4  | RTE 208     | Basics of communication and bus systems                    | 3  | 1+2 | 8    |
| 5  | PAE 210     | Industrial automation buses                                | 3  | 1+2 | 8    |
| 6  | CENG 298    | Computer networks and buses                                | 3  | 2+1 | 8    |
| 7  | ELC 310     | Industrial sensors                                         | 3  | 1+1 | 7    |
| 8  | ELC 308     | Sensors and actors                                         | 3  | 1+1 | 7    |
| 9  | PAE 320     | Industrial execution mechanisms                            | 3  | 1+1 | 7    |
| 10 | EE 316      | Technological processes and devices of electric power      | 2  | 1+1 | 6    |
| 11 | MANE 311    | Mechanical engineering technological processes and devices | 2  | 1+1 | 6    |
| 12 | PAE 324     | Power electronics and electrical transmission management   | 2  | 1+1 | 6    |
| 13 | PAE 421     | Technical foreign language                                 | 0  | 2+0 | 3    |
| 14 | IE 345      | Quality control                                            | 0  | 2+0 | 3    |
| 15 | PAE 415     | Project management                                         | 0  | 2+0 | 3    |
| 16 | PAE 326     | Process identification                                     | 2  | 1+2 | 7    |
| 17 | RTE 312     | Digital signal processing                                  | 2  | 1+2 | 7    |
| 18 | PAE 437     | Intellectual control systems                               | 2  | 2+1 | 7    |
| 19 | PAE 439     | Functional security of automation systems                  | 3  | 2+1 | 8    |
| 20 | PAE 429     | Optimal control                                            | 3  | 2+1 | 8    |
| 21 | PAE 435     | SCADA systems                                              | 2  | 2+1 | 7    |
| 22 | PAE 433     | Reliability and diagnostics of automated systems           | 3  | 2+1 | 8    |
| 23 | PAE 431     | Process control                                            | 3  | 2+1 | 8    |

**NAE - Non-Area Elective Courses**

| No | Course code | Title | Th | Pr  | Ects |
|----|-------------|-------|----|-----|------|
| 1  | MINF 167    | Logic | 1  | 1+0 | 3    |

|    |          |                                                                             |   |     |   |
|----|----------|-----------------------------------------------------------------------------|---|-----|---|
| 2  | SOC 150  | Introduction to Multiculturalism                                            | 1 | 1+0 | 3 |
| 3  | LAW 110  | Constitution of Republic of Azerbaijan and Fundamentals of Law              | 1 | 1+0 | 3 |
| 4  | SOC 110  | Sociology                                                                   | 1 | 1+0 | 3 |
| 5  | PHIL 159 | Philosophy                                                                  | 1 | 1+0 | 3 |
| 6  | SOC 180  | Ethics and aesthetics                                                       | 1 | 1+0 | 3 |
| 7  | IT 379   | Information technologies (Process automation)                               | 1 | 1+0 | 3 |
| 8  | IT 113   | Information management                                                      | 1 | 1+0 | 3 |
| 9  | EE 308   | Research Methods                                                            | 1 | 1+0 | 3 |
| 10 | BA 108   | Principles of Entrepreneurship and Introduction to Business                 | 1 | 1+0 | 3 |
| 11 | PA 139   | Politology                                                                  | 1 | 1+0 | 3 |
| 12 | ENG 040  | English for business and academic communication-3 (for academic purposes)   | 0 | 6+0 | 5 |
| 13 | ENG 015  | English for business and academic communication-1 (reading- writing)        | 0 | 6+0 | 5 |
| 14 | ENG 025  | English for business and academic communication-2 (listening comprehension) | 0 | 6+0 | 5 |
|    |          |                                                                             |   |     |   |
|    |          |                                                                             |   |     |   |