



**CURRICULUM**  
of Educational Program on enrollment for 2022-2023 academic year

Educational program 8D07209 - "Advanced materials processing technologies"  
Group of Educational programs D113 - "Technology of materials processing by pressure"

Form of study: full-time

Duration of study: 3 year

Academic degree: Doctor of Philosophy (PhD)

| Discipline code  | Name of disciplines  | Cycle   | Total amount in credits | Total hours | Classroom amount lec/lab/pr | SIS (including TSIS) in hours | Form of control | Allocation of face-to-face training based on courses and semesters |            |            |            |            |            |    |
|--|--|---------|-------------------------|-------------|-----------------------------|-------------------------------|-----------------|--|------------|------------|------------|------------|------------|----|
|  |  |         |                         |             |                             |                               |                 | 1 course   |            |            | 2 course   |            |            |    |
|  |  |         |                         |             |                             |                               |                 | 1 semester   | 2 semester | 3 semester | 4 semester | 5 semester | 6 semester |    |
| <b>CYCLE OF BASIC DISCIPLINES (BD)</b>   |  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| <b>M-1. Technical training module (university component)</b>                   |  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| MET322   | Scientific research methods  | BD UC   | 5                       | 150         | 2/0/1                       | 105                           | E               | 5  |            |            |            |            |            |    |
| LNG305   | Academic writing   | BD UC   | 5                       | 150         | 0/0/3                       | 105                           | E               | 5  |            |            |            |            |            |    |
| <b>Component of choice</b>   |  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| MSM307   | Virtual production   | BD, CCH | 5                       | 150         | 2/0/1                       | 105                           | E               | 5  |            |            |            |            |            |    |
| MSM306   | Advanced digital factory   |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| <b>CYCLE OF PROFILE DISCIPLINES (PD)</b>                                       |  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| <b>M-2. Module of scientific and industrial training (component of choice)</b> |  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| IND319   | Advanced optimization  | PD, CCH | 5                       | 150         | 2/0/1                       | 105                           | E               | 5  |            |            |            |            |            |    |
| IND311   | Advanced production systems  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| IND301   | Smart manufacturing  | PD, CCH | 5                       | 150         | 2/0/1                       | 105                           | E               | 5  |            |            |            |            |            |    |
| IND300   | Digital production   |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| <b>M-3. Practice-oriented module</b>   |  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| AAP350   | Pedagogical practice   | BD UC   | 10                      |             |                             |                               |                 |  |            | 10         |            |            |            |    |
| AAP355   | Research practice  | PD UC   | 10                      |             |                             |                               |                 |  |            |            | 10         |            |            |    |
| <b>M-4. Experimental research module</b>                                       |  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| AAP336   | Research work of a doctoral candidate, including internships and completion of a doctoral dissertation | RWDS UC | 5                       |             |                             |                               |                 |  |            |            |            |            |            | 5  |
| AAP347   | Research work of a doctoral candidate, including internships and completion of a doctoral dissertation | RWDS UC | 40                      |             |                             |                               |                 |  |            |            | 20         | 20         |            |    |
| AAP356   | Research work of a doctoral candidate, including internships and completion of a doctoral dissertation | RWDS UC | 60                      |             |                             |                               |                 |  |            |            |            |            | 30         | 30 |
| AAP348   | Research work of a doctoral candidate, including internships and completion of a doctoral dissertation | RWDS UC | 18                      |             |                             |                               |                 |  |            |            |            |            |            | 18 |
| <b>M-5. Module of final attestation</b>  |  |         |                         |             |                             |                               |                 |  |            |            |            |            |            |    |
| ECA303   | Writing and defending a doctoral dissertation  | FA      | 12                      |             |                             |                               |                 |  |            |            |            |            |            | 12 |
| <b>Total based on UNIVERSITY:</b>  |  |         |                         |             |                             |                               |                 | 30   | 30         | 30         | 30         | 30         | 30         |    |
|  |  |         |                         |             |                             |                               |                 | 60   | 60         | 60         | 60         | 60         |            |    |

| Number of credits for the entire period of study |  |                           |                           |    |       |
|--|--|---------------------------|---------------------------|----|-------|
| Cycle.code                                       | Cycles of disciplines                  | Credits                   |                           |    | Total |
|  |  | university component (UC) | component of choice (CCH) |    |       |
| BD   | Cycle of basic disciplines             | 20                        | 5                         |    | 25    |
| PD   | Cycle of profile disciplines           | 10                        | 10                        |    | 20    |
|  | <b>Total for theoretical training:</b> | 0                         | 30                        | 15 | 45    |
|  | RWDS                                   |                           |                           |    | 123   |
| FA   | Final attestation                      | 12                        |                           |    | 12    |
|  | <b>TOTAL:</b>                          | 12                        | 30                        | 15 | 180   |

Decision of the Academic Council of Kazntu named after K.Satpayev. Protocol № 13 or "28" 04 2022y.

Decision of the Educational and Methodological Council of Kazntu named after K.Satpayev. Protocol № 7 or "26" 04 2022y.

Decision of the Academic Council of the Institute E&ME. Protocol № 5 or "20" 04 2022y.

Vice-Rector for Academic Affairs

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