

Table 1. Course schedule by semesters and years of study

Elective module 1 – Extractive metallurgy

| Number | Code | Subject name | Semester | Type | Status of the subject | Classes of active teaching | | | Other classes | ECTS |
|--------------------|----------------------|--|----------|------|------------------------------------|----------------------------|-----------|--------------------|---------------|-----------|
| | | | | | | Lectures | Exercises | Others of teaching | | |
| FIRST YEAR | | | | | | | | | | |
| 1. | ОИМ1М1 | Mathematics 1 | 1 | TM | Obligatory | 3 | 3 | | | 8 |
| 2. | ОТИ1Ф | Physics | 1 | TM | Obligatory | 3 | 1 | 2 | | 8 |
| 3. | ОТИ1ОХ | General chemistry | 1 | TM | Obligatory | 3 | 1 | 2 | | 8 |
| 4. | ОИМ1И1 | Informatics 1 | 1 | AE | Obligatory | 2 | | | | 4 |
| 5. | ОИМ1ЕJ1 | English language 1 | 1 | AE | Obligatory | 1 | 1 | | | 2 |
| 5. | ОИМ1ЕJ1 | English language 1 | 2 | AE | Obligatory | 1 | 1 | | | 2 |
| 6. | ОТИ1НХ | Inorganic chemistry | 2 | TM | Obligatory | 3 | 1 | 2 | | 8 |
| 7. | ОИМ1И2 | Informatics 2 | 2 | AE | Obligatory | 2 | 2 | | | 6 |
| 8. | ОТИ1ИГ | Engineering graphics | 2 | AE | Obligatory | 2 | 1 | 1 | | 6 |
| 9. | ОТИ1М2 | Mathematics 2 | 2 | TM | Obligatory | 3 | 3 | | | 8 |
| | | | | | | 23 + 14 + 7 = 44 | | | | 60 |
| SECOND YEAR | | | | | | | | | | |
| 10. | ОИМ2С | Statistics | 3 | TM | Obligatory | 3 | 3 | | | 9 |
| 11. | ОТИ2ФХ | Physical chemistry | 3 | SP | Obligatory | 3 | 1 | 2 | | 9 |
| 12. | ОРИ2МП | Mineralogy and Petrography | 3 | SP | Obligatory | 3 | 3 | | | 8 |
| 13. | ОИМ2ЕJ2 | English language 2 | 3 | AE | Obligatory | 1 | 1 | | | 4 |
| 13. | ОИМ2ЕJ2 | English language 2 | 4 | AE | Obligatory | 1 | 1 | | | 2 |
| 14. | ОМИ2ИМ1 | Testing of metals 1 | 4 | SP | Obligatory | 3 | 1 | 2 | | 8 |
| 15. | ОМИ2МТ1 | Metallurgical thermodynamics 1 | 4 | SP | Obligatory | 3 | 2 | 1 | | 8 |
| 16. | ОТИ2АХ | Analytical chemistry | 4 | TM | Obligatory | 3 | 1 | 2 | | 8 |
| 17. | ОМИ2Е ОМИ2ПММ | Subject of elective block 1. 17.1. <i>Electrochemistry</i> 17.2. <i>Introduction to metallic materials</i> | 4 | AE | Elective | 2 | 1 | 1 | | 4 |
| | | | | | | 22 + 14 + 8 = 44 | | | | 60 |
| THIRD YEAR | | | | | | | | | | |
| 18. | ОМИЗФМ1 | Physical metallurgy 1 | 5 | SP | Obligatory | 3 | 1 | 2 | | 6 |
| 19. | ОМИЗМИ2 | Testing of metals 2 | 5 | SP | Obligatory | 3 | 1 | 2 | | 6 |
| 20. | ОМИЗТПП ОМИЗТПМПС | Subject of elective block 2. 20.1. <i>Theory of pyrometallurgical processes</i> 20.2. <i>Theory of metal forming</i> | 5 | SP | 20.1. Elective 20.2. Obligatory | 3 | 2 | 1 | | 8 |
| 21. | ОМИЗМО ОМИЗТЛ | Subject of elective block 3. | 5 | SP | Elective | 3 | 2 | 1 | | 8 |

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|--------------------------|------------------------------|--|---|----------------|------------|--------------------------|-----------|-----------|---|------------|------------|
| | | 21.1. Metallurgical operations 21.2. Theory of casting process | | | | | | | | | |
| 22. | ОИМ3ЕJ3 | English language 3 | 5 | AE | Obligatory | 1 | 1 | | | 2 | |
| 22. | ОИМ3ЕJ3 | English language 3 | 6 | AE | Obligatory | 1 | 1 | | | 2 | |
| 23. | ОИМ3ТХЕП ОИМ3ТО | Subject of elective block 4. 23.1. Theory of hydro and electrometallurgical processes 23.2. Heat treatment | 6 | PA | Elective | 3 | 1 | 2 | | 8 | |
| 24. | ОИМ3ФМ2 | Physical metallurgy 2 | 6 | SP | Obligatory | 3 | 1 | 2 | | 6 | |
| 25. | ОИМ3ТТПМ | Heat technique and furnaces in metallurgy | 6 | SP | Obligatory | 3 | 2 | 1 | | 8 | |
| 26. | ОИМ4ЕМ ОИМ3ОЕМ ОИМ3ОПМ | Subject of elective block 5. 26.1. Environmental management 26.2. Fundamentals of the extractive metallurgy 26.3. Basics of processing metallurgy | 6 | PA PA PA | Elective | 2 | | | | 6 | |
| | | | | | | 25 + 12 + 11 = 48 | | | | | 60 |
| FOURTH YEAR | | | | | | | | | | | |
| 27. | ОИМ4МГ | Metallurgy of iron | 7 | PA | Obligatory | 3 | 2 | 1 | | 8 | |
| 28. | ОИМ4МТОМ | Metallurgy of the heavy non-ferrous metals | 7 | PA | Obligatory | 3 | 2 | 1 | | 8 | |
| 29. | ОИМ4МРМ | Metallurgy of the rare metals | 7 | PA | Obligatory | 3 | 1 | 2 | | 8 | |
| 30. | ОИМ4МЛМ | Metallurgy of the light metals | 7 | PA | Obligatory | 2 | 2 | 1 | | 8 | |
| 31. | ОИМ4ВМ ОИМ4МСС ОИМ4ДМП | Subject of elective block 6. 31.1. Vacuum metallurgy 31.2. Metallurgy of the secondary raw materials 31.3. Metal plating | 8 | PA | Elective | 2 | 1 | 2 | | 6 | |
| 32. | ОИМ4ЕОП | Economics and organization of business | 8 | AE | Obligatory | 3 | 0 | | | 6 | |
| 33. | ОИМ4МЧ | Metallurgy of steel | 8 | PA | Obligatory | 3 | 1 | 2 | | 6 | |
| 34. | ОИМ3УК ОИМ4ПМ | Subject of elective block 7. 34.1. Quality management 34.2. Designing in metallurgy | 8 | SP SP | Obligatory | 3 | 3 | | | 6 | |
| | | | | | | 22 + 12 + 9 = 43 | | | | | 54 |
| | | | | | | 92 | 59 | 28 | | | |
| | | | | | | 179 | | | | | 234 |
| 35. | ОИМ4СП | Professional practice | 8 | PA | Obligatory | - | | | 4 | 3 | |
| 36. | ОИМ4ЗР | Final work | 8 | PA | Obligatory | - | | | 4 | 3 | |
| Total ECTS points | | | | | | | | | | 240 | |

Elective module 2 – Processing metallurgy

| Number | Code | Subject name | Semester | Type | Status of the subject | Classes of active teaching | | | Other classes | ECTS | |
|--------------------|----------------------|--|----------|------|------------------------------------|----------------------------|-----------|-------------------------|---------------|------|-----------|
| | | | | | | Lectures | Exercises | Other forms of teaching | | | |
| FIRST YEAR | | | | | | | | | | | |
| 1. | ОИМ1М1 | Mathematics 1 | 1 | TM | Obligatory | 3 | 3 | | | 8 | |
| 2. | ОТИ1Ф | Physics | 1 | TM | Obligatory | 3 | 1 | 2 | | 8 | |
| 3. | ОТИ1ОХ | General chemistry | 1 | TM | Obligatory | 3 | 1 | 2 | | 8 | |
| 4. | ОИМ1И1 | Informatics 1 | 1 | AE | Obligatory | 2 | | | | 4 | |
| 5. | ОИМ1ЕJ1 | English language 1 | 1 | AE | Obligatory | 1 | 1 | | | 2 | |
| 5. | ОИМ1ЕJ1 | English language 1 | 2 | AE | Obligatory | 1 | 1 | | | 2 | |
| 6. | ОТИ1НХ | Inorganic chemistry | 2 | TM | Obligatory | 3 | 1 | 2 | | 8 | |
| 7. | ОИМ1И2 | Informatics 2 | 2 | AE | Obligatory | 2 | 2 | | | 6 | |
| 8. | ОТИ1ИГ | Engineering graphics | 2 | AE | Obligatory | 2 | 1 | 1 | | 6 | |
| 9. | ОТИ1М2 | Mathematics 2 | 2 | TM | Obligatory | 3 | 3 | | | 8 | |
| | | | | | | 23 + 14 + 7 = 44 | | | | | 60 |
| SECOND YEAR | | | | | | | | | | | |
| 10. | ОИМ2С | Statistics | 3 | TM | Obligatory | 3 | 3 | | | 9 | |
| 11. | ОТИ2ФХ | Physical chemistry | 3 | SP | Obligatory | 3 | 1 | 2 | | 9 | |
| 12. | ОРИ2МП | Mineralogy and Petrography | 3 | SP | Obligatory | 3 | 3 | | | 8 | |
| 13. | ОИМ2ЕJ2 | English language 2 | 3 | AE | Obligatory | 1 | 1 | | | 4 | |
| 13. | ОИМ2ЕJ2 | English language 2 | 4 | AE | Obligatory | 1 | 1 | | | 2 | |
| 14. | ОМИ2ИМ1 | Testing of metals 1 | 4 | SP | Obligatory | 3 | 1 | 2 | | 8 | |
| 15. | ОМИ2МТ1 | Metallurgical thermodynamics 1 | 4 | SP | Obligatory | 3 | 2 | 1 | | 8 | |
| 16. | ОТИ2АХ | Analytical chemistry | 4 | TM | Obligatory | 3 | 1 | 2 | | 8 | |
| 17. | ОМИ2Е ОМИ2ПММ | Subject of elective block 1. 17.1. <i>Electrochemistry</i> 17.2. <i>Introduction to metallic materials</i> | 4 | AE | Elective | 2 | 1 | 1 | | 4 | |
| | | | | | | 22 + 14 + 8 = 44 | | | | | 60 |
| THIRD YEAR | | | | | | | | | | | |
| 18. | ОМИЗФМ1 | Physical metallurgy 1 | 5 | SP | Obligatory | 3 | 1 | 2 | | 6 | |
| 19. | ОМИЗМИ2 | Testing of metals 2 | 5 | SP | Obligatory | 3 | 1 | 2 | | 6 | |
| 20. | ОМИЗТПП ОМИЗТПМПС | Subject of elective block 2. 20.1. <i>Theory of pyrometallurgical processes</i> 20.2. <i>Theory of metal forming</i> | 5 | SP | 20.1. Elective 20.2. Obligatory | 3 | 2 | 1 | | 8 | |
| | | Subject of elective block 3. | 5 | SP | Elective | 3 | 2 | 1 | | 8 | |

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|--------------------|------------------------------|---|---|----------------|------------|--------------------------|-----------|-----------|--|------------|
| 21. | ОМИЗМО ОМИЗТЛ | 21.1. <i>Metallurgical operations</i> 21.2. <i>Theory of casting process</i> | | | | | | | | |
| 22. | ОИМЗЕЈЗ | English language 3 | 5 | AE | Obligatory | 1 | 1 | | | 2 |
| 22. | ОИМЗЕЈЗ | English language 3 | 6 | AE | Obligatory | 1 | 1 | | | 2 |
| 23. | ОМИЗТХЕП ОМИЗТО | Subject of elective block 4. 23.1. <i>Theory of hydro and electrometallurgical processes</i> 23.2. <i>Heat treatment</i> | 6 | PA | Elective | 3 | 1 | 2 | | 8 |
| 24. | ОМИЗФМ2 | Physical metallurgy 2 | 6 | SP | Obligatory | 3 | 1 | 2 | | 6 |
| 25. | ОМИЗТТПМ | Heat technique and furnaces in metallurgy | 6 | SP | Obligatory | 3 | 2 | 1 | | 8 |
| 26. | ОИМ4ЕМ ОМИЗОЕМ ОМИЗОПМ | Subject of elective block 5. 26.1. <i>Environmental management</i> 26.2. <i>Fundamentals of the extractive metallurgy</i> 26.3. <i>Basics of processing metallurgy</i> | 6 | PA PA PA | Elective | 2 | | | | 6 |
| | | | | | | 25 + 12 + 11 = 48 | | | | 60 |
| FOURTH YEAR | | | | | | | | | | |
| 27. | ОМИ4ПМПС1 | Processing of metals in plastic state 1 | 7 | PA | Obligatory | 3 | 2 | 1 | | 8 |
| 28. | ОМИ4Л | Casting | 7 | PA | Obligatory | 3 | 2 | 1 | | 8 |
| 29. | ОМИ4С | Powder metallurgy | 7 | PA | Obligatory | 3 | 1 | 2 | | 8 |
| 30. | ОМИ4МЗ | Welding metallurgy | 7 | PA | Obligatory | 2 | 1 | 2 | | 6 |
| 31. | ОМИ4ПМПС2 | Processing of metals in plastic state 2 | 8 | PA | Elective | 3 | 1 | 2 | | 6 |
| 32. | ОМИ4КМ ОМИ4СММ ОМИ4МСС | Subject of elective block 6. 32.1. <i>Contact materials</i> 32.2. <i>Sintered metallic materials</i> 32.3. <i>Metallurgy of the secondary raw materials</i> | 8 | PA | Obligatory | 2 | 1 | 2 | | 6 |
| 33. | ОИМ4ЕОП | Economics and organization of business | 8 | AE | Obligatory | 3 | 0 | | | 6 |
| 34. | ОИМЗУК ОМИ4ПМ | Subject of elective block 7. 34.1. <i>Quality management</i> 34.2. <i>Designing in metallurgy</i> | 8 | SP | Obligatory | 3 | 3 | | | 6 |
| | | | | | | 22 + 11 + 10 = 43 | | | | 54 |
| | | | | | | 92 | 56 | 31 | | |
| | | | | | | 179 | | | | 234 |

| | | | | | | | | |
|-----|--------|------------------------------|---|----|------------|---|--------------------------|------------|
| 35. | ОМН4СП | Professional practice | 8 | PA | Obligatory | - | 4 | 3 |
| 36. | ОМН4ЗР | Final work | 8 | PA | Obligatory | - | 4 | 3 |
| | | | | | | | Total ECTS points | 240 |