



## 二、专业选修课程

| 课程类别           | 序号      | 课程编号         | 课程名称          | 学分   | 总学时  | 讲   | 实   | 设 | 上 | 建议修读学期 |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|----------------|---------|--------------|---------------|------|------|-----|-----|---|---|--------|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|
|                |         |              |               |      |      |     |     |   |   | 一      | 二 | 三 | 四 | 五 | 六 | 七 | 八 | 1 | 2 | 3 |  |  |  |  |  |
| 公共模块 (至少选学4学分) |         |              |               |      |      |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 专业选修           | 1       | 4020006      | 新生研讨课         | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 2       | 4020306      | 冶金工程概论        | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 3       | 4020003      | 工业生态          | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 4       | 4020110      | 能源工程          | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 5       | 4020114      | 冶金环境工程与资源循环利用 | 1.5  | 24   | 24  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 6       | 4020122      | 专业英语阅读与写作     | 1.5  | 24   | 24  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 7       | 4020116      | 冶金过程检测与自动控制   | 1.5  | 24   | 24  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 8       | 4020004      | 冶金单元设计与操作     | 2    | 32   | 32  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 9       | 4020002      | 耐火材料          | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 10      | 4020001      | 冶金史           | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 11      | 4020005      | 国内外专家讲座       | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 小 计     |              |               |      | 13.5 | 216 | 216 |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 钢铁冶金方向  |              |               |      |      |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 12      | 4020007      | 煤与焦化工艺        | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 13      | 4020008      | 铁矿石造块工艺       | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 14      | 4020123      | 铁合金           | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 15      | 4020010      | 铁水预处理(双语)     | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 16      | 4020011      | 炉外精炼(双语)      | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 17      | 4020012      | 特种冶金          | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 18      | 4020013      | 连铸工艺与设备       | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 19      | 4020125      | 特殊钢冶金过程工程     | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 20      | 4020207      | 纯净钢生产工艺       | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 21      | 4020009      | 非高炉炼铁         | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|                | 22      | 4020121      | 冶金流程工程学       | 1    | 16   | 16  |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 23             | 4020574 | 电磁冶金原理与工艺    | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 24             | 4020014 | 钢铁材料成形加工     | 2             | 32   | 32   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 小 计            |         |              |               | 14   | 224  | 224 |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 有色金属冶金方向       |         |              |               |      |      |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 25             | 4020015 | 有色冶金设备       | 2             | 32   | 32   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 26             | 4020119 | 湿法冶金方法       | 2             | 32   | 32   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 27             | 4020016 | 铅锌冶金学        | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 28             | 4020017 | 稀土冶金学        | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 29             | 4020018 | 硅冶金学         | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 30             | 4020019 | 高纯金属冶金方法     | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 31             | 4020407 | 稀贵金属冶金学      | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 32             | 4020414 | 有色生物冶金(双语)   | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 33             | 4020020 | 有色冶金新工艺      | 2             | 32   | 32   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 小 计            |         |              |               | 12   | 192  | 192 |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 冶金与材料物理化学方向    |         |              |               |      |      |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 34             | 4020024 | 相结构基础及研究方法   | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 35             | 4020108 | 无机非金属材料      | 1.5           | 24   | 24   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 36             | 4020405 | 功能材料         | 2             | 32   | 32   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 37             | 4020022 | 表面工程         | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 38             | 4020023 | 相图在冶金中的应用    | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 39             | 4020026 | 高温熔体物性       | 1.5           | 24   | 24   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 40             | 4020021 | 冶金物理化学前沿讲座   | 2             | 32   | 32   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 41             | 4020025 | 相变的物理与计算     | 1             | 16   | 16   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 42             | 4020027 | 固体电解质在冶金中的应用 | 1.5           | 24   | 24   |     |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 小 计            |         |              |               | 12.5 | 200  | 200 |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 专业选修课合计        |         |              |               | 52   | 832  | 832 |     |   |   |        |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |

## 三、选修课程选课要求

- 1、全校公共选修课程：应至少选修11学分，其中必须选修2个学分的英语课程；
- 2、专业选修课程选课：

(1) 本专业的学生至少选修16学分；

(2) 专业选修课程分为公共基础模块、钢铁冶金方向、有色金属冶金方向以及冶金与材料物理化学方向。在钢铁冶金、有色金属冶金以及冶金与材料物理化学等三个方向中，学生应选择一个方向作为主修方向，其他方向则作为辅修方向。其中公共基础模块至少选修4学分，主修方向至少选修7学分，其它方向分别至少选修2学分。