

# COURSE GUIDE – short form

Academic year 2017 - 2018

|                          |                                      |                       |           |               |   |                   |                |                         |          |
|--------------------------|--------------------------------------|-----------------------|-----------|---------------|---|-------------------|----------------|-------------------------|----------|
| Course name <sup>1</sup> | <b>THEORETICAL BASICS OF CASTING</b> |                       |           |               |   | Codul disciplinei | <b>3 SM 06</b> |                         |          |
| Course type <sup>2</sup> | <b>DID</b>                           | Category <sup>3</sup> | <b>DI</b> | Year of study | 3 | Semester          | <b>6</b>       | Number of credit points | <b>4</b> |

|                |                                  |  |           |   |           |   |           |
|----------------|----------------------------------|--|-----------|---|-----------|---|-----------|
| Faculty        | Material Science and Engineering | Number of teaching and learning hours <sup>4</sup> |           |   |           |   |           |
| Field          | Materials Engineering            | Total  | L         | T | LB        | P | IS        |
| Specialization | SM                               | <b>96</b>  | <b>28</b> | - | <b>28</b> | - | <b>40</b> |

|   |             |   |
|---|-------------|---|
| Pre-requisites from the curriculum <sup>5</sup> | Compulsory  | Technical Drawing and Infographics, Physics, Metallic Materials Science and Engineering, Physical Chemistry, Thermotechnics |
|   | Recommended | Cristalography and Mineralogy, Properties and Materials Choice 1  |

|                                  |   |
|----------------------------------|---|
| General objective <sup>6</sup>   | The formation of the ability of applying of principles and basic methods for solving well defined problems/ situations, typical for the phenomena and physico-chemical, crystallographical, thermodynamical and technological processes occurring at the casting and solidification of liquid metals and alloys in moulds in qualified assistance conditions promoting logical reasoning and applying the values of ethics of engineer profession in responsible task execution |
| Specific objectives <sup>7</sup> | The establishing of of knowledge relations between theoretical subjects studied and professional areas as physics, chemistry, mechanics and the technologies of obtaining and processing by casting of the alloys, focussing on the phenomenology specific to solidification in the mould.  |
| Course description <sup>8</sup>  | The parameters of melting process, alloy flowing, cristallisation, solidification front, solidification directing, cristalline structure of castings, segregation phenomena, solid and gas inclusions, casting defects, alloy-mould heat exchange, contraction in cast alloys, retasure formation.  |

| Assessment            |   | Schedule <sup>9</sup> | Percentage of the final grade (minimum grade) <sup>10</sup> |
|-----------------------|---|-----------------------|---|
| Continuous assessment | Class tests along the semester -  | week                  | %   |
|                       | Activity during laboratory works (open questions)   | continuous            | 50 %  |
|                       | Assignments -   | week                  | %   |
| Final assessment      | Final assessment form <sup>11</sup>   | colloquium            | 50 %<br>(minimum 5)   |
|                       | Examination procedures and conditions:<br>1. Subject with closed questions ; tasks answer to closed questions ; working conditions -; percent 50 %;<br>2. Subject with closed questions ; tasks answer to closed questions ; working conditions -; percent 50 %;<br>3. - ; tasks - ; working conditions -; percent %; |                       |   |

|                     |   |
|---------------------|---|
| Course organizer    | <b>Assoc.Prof.Ph.D.Eng. Iulian Ionita</b>   |
| Teaching assistants | <b>Assoc.Prof.Ph.D.Eng. Iulian Ionita</b><br><b>Tech.Assist.Ph.D.Eng. Raluca Maria Florea</b> |

<sup>1</sup>Course name from the curriculum

<sup>2</sup> DF – fundamental, DID – in the field, DS – specialty, DC – complementary (from the curriculum)

<sup>3</sup> DI – imposed, DO –optional, DL – facultative (from the curriculum)

<sup>4</sup> Points 3.8, 3.5, 3.6a,b,c, 3.7 from the Course guide – extended form (L-lecture, T-tutorial, LB-laboratory works, P-project, IS-individual study)

<sup>5</sup> According to 4.1 – Pre-requisites - from the Course guide – extended form

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<sup>6</sup> According to 7.1 from the Course guide – extended form

<sup>7</sup> According to 7.2 from the Course guide – extended form

<sup>8</sup> Short description of the course, according to point 8 from the Course guide – extended form

<sup>9</sup> For continuous assessment: weeks 1 – 14, for final assessment – colloquium: week 14, for final assessment-exam: exam period

<sup>10</sup> A minimum grade might be imposed for some assessment stages

<sup>11</sup> Exam or colloquium