

Course title: Additive technology in casting
Institute/Division: Institute of Materials Engineering, Faculty of Materials Engineering and Physics

Course code:

Erasmus subject code:

Number of contact hours: 30 hours

Course duration: 1 semester

ECTS credits: 5

Course description:

This course is an elementary introduction to molding technology with use of additive technology. It is for undergraduate students in Mathematics, Computer Science, Physics or Engineering with no previous knowledge of the subject.

Topics covered include: design 3D model for casting, description of casting methods, description of 3D printing methods used in foundry industry, 3D print history, casting history, basic concepts related to casting and 3D printing, use of the FFF (FDM) and SLA printer, printing problems and how to solve them, analysis casting defects, making cast drawings, analysis of molding sand, application possibilities of the printing and casting method, materials for 3D printing and casting, manual modeling of the casting mold.

Literature:

Ben Redwood, *The 3D Printing Handbook*, 3D Hubs B.V., Amsterdam, 2017.

Joan Horvath, *Mastering 3D Printing*, Apress, New York, 2014

D. I. Wimpenny, P. M. Pandey, L. J. Kumar, *Advances in 3D Printing & Additive Manufacturing Technologies*, Springer, 2017.

Flinn, Richard A, *Fundamentals of metal casting*, Addison-Wesley, 1963.

Course type: Lectures (15 hours), Labs (15 hours)

Assessment method: two tests during the semester, drawings

Prerequisites: non

Primary target group: Materials Science, Computer Science, Engineering

Lecturer: Szymon Gądek, MSc

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