DEBRECENI EGYETEM

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Tantárgy megnevezése	**Additive Manufacturing**
Tantárgy típusa	kötelezően választható, angol nyelven
Tantárgyfelelős	Dr. Bodzás Sándor bevont vendégprofesszor: Dr. Nicolae Balc (Kolozsvári Műszaki Egyetem)
Tematika	A Direct 3D printing technologies: Fused Deposition Modelling (FDM), Laminated Object Manufacturing (LOM), Stereo-lithography (SLA); CAD or 3D printing. Transfer of virtual CAD models to AM equipment; Selective Laser Sintering (SLS): working principle and technological parameters; Selective Laser Melting (SLM): working principle and technological parameters; Other AM processes to for 3D printing of the metal parts: Electron Beam Melting (EBM), Direct Metal Laser Sintering (DMLS - EOS), Concept Laser; Rapid tooling for small volume production of the plastic parts: vacuum casting in silicone rubber moulds; Rapid metal casting in small series production (Investment Casting); Innovative manufacturing using EDM (Electrical Discharge Machining). EDM applications; Innovative manufacturing by water jet cutting (WJC) and milling; How to choose the appropriate innovative AM manufacturing method, to be efficient for a specific application, depending on material type, shape complexity, manufacturing series, etc. Medical applications of the 3D printing technologies. How to print medical implants made from biocompatible metal and composite materials.
Irodalom	• Gebhardt, A., s.a, 3D Printing-Understanding Additive Manufacturing, Hanser, 2018. • Nicolae Balc, Dan Leordean, Editors: “Research and Applications in Manufacturing Engineering”, MATEC Web of Conferences – EDP Sciences, France, Volume 299, 2019, ISBN- ISBN: 978-2-7598-9083-5, https://www.matec-conferences.org/articles/matecconf/abs/2019/48/contents/contents.html • Nicolae Balc, Editor: “Modern Technologies in Manufacturing”, MATEC Web of Conferences – EDP Sciences, France, Volume 137, 2017, ISBN- ISBN: 978-2-7598-9083-5, https://www.matec-conferences.org/articles/matecconf/abs/2017/51/contents/contents.html • Nicolae Balc, Editor: “Modern Technologies in Manufacturing”, Trans Tech Publications - Applied Mechanics and Materials, Switzerland, Vol. 808, 394 pagini, 2015, ISBN-13: 978-3-03835-653-0, http://www.scientific.net/AMM.808/book.