



MECHANICAL TECHNOLOGY	
Enrollment year	2017/2018
Academic year	2019/2020
Regulations	DM270
Academic discipline	ING-IND/16 (PRODUCTION TECHNOLOGIES AND SYSTEMS)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	INDUSTRIAL ENGINEERING
Curriculum	Meccanica
Year of study	3°
Period	(30/09/2019 - 20/01/2020)
ECTS	6
Lesson hours	45 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	CARNEVALE MARCO (titolare) - 1 ECTS REBAIOLI LARA - 5 ECTS
Prerequisites	No requirements
Learning outcomes	At the end of the course the student will know the basic principles, the characteristics, the needs, the constraints and the industrial application fields of the main casting, forming and chip removal processes.
Course contents	<ol style="list-style-type: none">1. Introduction: Industrial production and materials for engineering applications.2. Casting: Solidification and cooling of castings and related issues (withdrawal, gas solubility, solidification structures, etc.). Sand casting and other processes with expendable mold. Die casting. Investment casting. Other casting processes.3. Forming: Basic concepts of plasticity. Main processes for plastic deformation: open-die forging, impression-die forging, rolling, direct and

	<p>indirect extrusion, wire and tube drawing, sheet metal processing (blanking and piercing, bending, deep drawing).</p> <p>4. Chip removal: Orthogonal cutting and chip formation. Tool materials. Basic elements of tool wear. Main chip removal operations: turning, milling, drilling, grinding. Minor processes (shaping, planing, broaching, etc.). Method of specific cutting pressure method to determine the involved forces.</p>
Teaching methods	Lectures and numerical exercises concerning casting, forming and chip removal processes.
Reccomended or required readings	<p>1. Lecture slides</p> <p>2. Mikell P. Groover, Tecnologia Meccanica, Editore: Citta'Studi, Anno edizione: 2014</p> <p>3. M. Santochi, F. Giusti, Tecnologia Meccanica e studi di fabbricazione, Editore: Ambrosiana</p>
Assessment methods	The student has to: demonstrate to know the application field of the technological processes; demonstrate the ability to represent graphically tools, equipment, machines and mechanical components to which the manufacturing process are applied; know the main models concerning each process.
Further information	None
Sustainable development goals - Agenda 2030	\$lbl legenda sviluppo sostenibile