



**Università
degli Studi
di Palermo**



DOCTORAL DEGREE IN
MECHANICAL, MANUFACTURING, MANAGEMENT AND AEROSPACE INNOVATION (M3AI)

**Doctoral Degree in
MECHANICAL, MANUFACTURING, MANAGEMENT AND AEROSPACE INNOVATION
CYCLE XXXVII**

Annual report on the education and training activities

PhD student	Muhammad Adnan
Tutor	Prof. Livan Fratini
Co-Tutor	Prof. Giuseppe Ingarao
R.Tutor	
Coordinator	Prof.ssa Giovanna Lo Nigro
Year of study	First
Title of the research	Analysis of Manufacturing processes for Material/component reuse.



4. Description of the learning activities

Courses of the PhD offer

- **Non-Destructive Evaluation for Industry 4.0**, 8 hours, verification by final exam, 1 CFU (yet to be attend)
- **Fundamentals of Life Cycle Engineering techniques**, 8 hours, verification by final discussion, 1 CFU (yet to be attend)
- **Retail 4.0 New Technologies and Methodologies for Frontend and Backend Services**, 16 hours, verification by final discussion, 2 CFU (yet to be attend)
- **Energy Transition and Decarbonization**, 8 hours, verification by final discussion, 1 CFU (yet to be attend)
- **Computational Modelling of Composite and Heterogeneous Materials** ,8 hours, verification by final discussion, 1 CFU (yet to be attend)
- **Research Methods**, 8 hours, verification by final discussion, 1 CFU (yet to be attend)
- **Additive Manufacturing**, 8 hours, verification by final discussion, 1 CFU (yet to be attend)

Language course

- **Italian Language**, 2 hours, verification by attendance through Rosetta Stone Platform, 0.2 CFU

Seminar Attended

- **Seminar “The role of knowledge and innovations in management Students’ and academic’ entrepreneurship” Prof. Mateusz Molasy, 8 hours, 1 CFU (verified by final exam)**



Type	Activities	Workload	Estimated CFU
AD	Seminars	1 seminar, 8 hours	1
	Doctoral Course	7 courses, 56 hours	8
	Italian Language	60 hours	6
	Total estimated CFU for AD		15
RAAT	Individual research	250 hours	10
	Experimental or laboratory activities	180 hours	12
	Supervised research activity	30 hours	5
	Tutoring and support for orientation activities, scientific dissemination, and knowledge contamination	8 hours	1
	Submission of articles in Conference	1	5
	Submission of articles in journals	1	10
Total estimated CFU for RAAT		43	