



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Ingegneria		
<b>ACADEMIC YEAR</b>	2022/2023		
<b>BACHELOR'S DEGREE (BSC)</b>	DIGITAL ENTERPRISE INNOVATION ENGINEERING		
<b>INTEGRATED COURSE</b>	QUALITY MANAGEMENT AND PRODUCT DEVELOPMENT		
<b>CODE</b>	12690		
<b>MODULES</b>	Yes		
<b>NUMBER OF MODULES</b>	2		
<b>SCIENTIFIC SECTOR(S)</b>	ING-IND/16		
<b>HEAD PROFESSOR(S)</b>	DI LORENZO ROSA	Professore Ordinario	Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	DI LORENZO ROSA LUPO TONI	Professore Ordinario Professore Associato	Univ. di PALERMO Univ. di PALERMO
<b>CREDITS</b>	12		
<b>PROPAEDEUTICAL SUBJECTS</b>			
<b>MUTUALIZATION</b>			
<b>YEAR</b>	3		
<b>TERM (SEMESTER)</b>	Annual		
<b>ATTENDANCE</b>	Not mandatory		
<b>EVALUATION</b>	Out of 30		
<b>TEACHER OFFICE HOURS</b>	<p><b>DI LORENZO ROSA</b> Monday 09:00 12:00 Stanza docente Edificio 8 I Piano Dipartimento dell'Innovazione Industriale e Digitale (blocco Tecnologie Meccaniche). Per ricevimento in giornate e orari diversi basta inviare una mail a rosa.dilorenzo@unipa.it per appuntamento.</p> <p><b>LUPO TONI</b> Monday 11:00 12:00 Ufficio del docente. Per ricevimento in giornate e orari diversi inviare richiesta via email a toni.lupo@unipa.it</p>		

**DOCENTE:** Prof.ssa ROSA DI LORENZO

<b>PREREQUISITES</b>	----
<b>LEARNING OUTCOMES</b>	----
<b>ASSESSMENT METHODS</b>	---
<b>TEACHING METHODS</b>	Teacher lectures, classroom exercises, case study discussion, group project and students' presentations.

**MODULE  
QUALITY MANAGEMENT**

*Prof. TONI LUPO*

**SUGGESTED BIBLIOGRAPHY**

Montgomery, Introduction to statistical quality control-Wiley-ISBN: 978-1-118-98915-9 (PBK) ISBN: 978-1-119-39911-7 (EVALC);  
Franceschini, Galetto, Maisano e Mastrogiacomo, Ingegneria della qualità Applicazioni ed Esercizi - CLUT; ISBN: 9788879924450.  
T. Lupo, Appunti del corso.

<b>AMBIT</b>	50288-Ingegneria gestionale
<b>INDIVIDUAL STUDY (Hrs)</b>	96
<b>COURSE ACTIVITY (Hrs)</b>	54

**EDUCATIONAL OBJECTIVES OF THE MODULE**

The objective of the course is to offer basic training related to the industrial quality management. Another objective is to develop the student ability to use the statistical methodologies and approaches for the process control and capability analysis.

**SYLLABUS**

<b>Hrs</b>	<b>Frontal teaching</b>
1	Introduction aims and evaluation methods
7	Quality management (TQM and Quality management system)
12	Statistical process control (Main control charts for attributes and variables; CUSUM charts and special control charts; Process capacity analysis)
8	Sampling control (Lot by lot sampling plans for attributes; Other sampling techniques; International standards)
<b>Hrs</b>	<b>Practice</b>
2	Quality management system and TQM
15	Shewhart, CUSUM and for attribute charts and process capability analysis
9	Design of lot-by-lot sampling plan

**MODULE  
PRODUCT DEVELOPMENT**

*Prof.ssa ROSA DI LORENZO*

**SUGGESTED BIBLIOGRAPHY**

- Dispense prof.ssa R. Di Lorenzo, 2012;
- K.T. Ulrich, S.D. Eppinger, R. Filippini, 2007, "Progettazione e sviluppo di prodotto" Mc Graw Hill eds. ISBN:978-88-386-6397-0

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**EDUCATIONAL OBJECTIVES OF THE MODULE**

The aim of the course is to develop a deep knowledge about new products design and development . The proposed methodologies will give an holistic view of new product development as a cross functional activity within enterprises. The main focus will concern generation and selection of new product concepts.

**SYLLABUS**

Hrs	Frontal teaching
2	New product development: introduction
2	Product development processes
1	NPD phases: a cross functional approach
2	Product planning
2	Concept design: aims and data
2	Identifying Customer Needs
2	Target specifications
2	Concepts generation
2	Concepts selection
2	Final specifications
1	System-level design
3	Product architecture
2	Design for manufacturing
2	Life cycle costing
2	Quality function deployment
2	Time based manufacturing & Concurrent engineering
3	Life cycle analysis
1	Collaborative product design
Hrs	Practice
1	Product planning application
3	Identifying Customer Needs: application
4	Target specification: application
4	Concepts generation: application
1	Concepts selection: application
3	Final specifications: application
2	Product Architecture: practical definition
1	Applications of TBM and CE methodologies