Savitribai Phule Pune University, Pune		
Third Year of Mechanical, Mechanical Sandwich & Automobile		
(2015 Course)		
Course Code: 302054		**Course Name : Audit Course** ∨ - **Smart Manufacturing**

Teaching Scheme:	Credits	Examination Scheme: Audit(P/F)
		Written and MCQ
PR:	**Th/Tut:--**	**TH** **In-Sem:** --
		End-Sem: --
Tut:	**TW:**	**PR:** --
		OR: --

Description:

Smart Manufacturing is an amalgamation of Information Technology, Cloud Computing & traditional Mechanical, Production Engineering towards achieving excellence in manufacturing. Maximum results with minimum resources being used. The course will introduce the concepts of Smart Manufacturing, how various technologies can be leveraged to achieve minimum breakdowns, First Time Right Production, 100% Delivery on Time with minimum turnaround time. Nine Pillars of Smart Manufacturing will be explained to the Students.

The course will make the students aware of developments in Technology those are going to alter the Traditional Manufacturing scenario. The following topics may be broadly covered in the classroom. The practical will be in the form of Group Discussion based on Case Study.

Course Objective:
• To know more about Smart Manufacturing & Industry 4.0
• To get knowledge of various converging Technologies
• To prepare ourselves for the ever changing Manufacturing Techniques

Course Outcome: The students will be
• Comfortable with terminology and practices in Smart Manufacturing
• Able to face the challenges in Industry & also contribute towards advancement.
• Active part of Industry 4.0 (Fourth Industrial Revolution)

Course Contents:
- Introduction to Industry 4.0
- Historical Background
- Nine Pillars of Smart Manufacturing
- Big Data & analytics
- Autonomous Robots
- Simulation
- Universal System Integration
- IIOT – Industrial Internet of Things
- 3 D Printing – Additive Manufacturing
- Cloud Computing
- Augmented Reality
- Convergence of Nine Pillars
- Business Propositions delivered with Smart Manufacturing
- Adding Smartness to Manufacturing – Adoption & Scaling
- Economic Aspects
- Ecosystem Required for Smart Manufacturing
- Skill set Required for Smart Manufacturing
- Effects on 4 M- Man, Machine, Materials & Methods in Smart Manufacturing

References:

1. Smart Manufacturing by Shoukat Ali; Publisher: LAP LAMBERT Academic Publishing (10 August 2016) ISBN-10: 3659933554ISBN-13: 978-3659933554

2. Industry 4.0: The Industrial Internet of Things 2016by Alasdair Gilchrist (Author)
Publisher: Apress; 1st ed. edition (30 July 2016)
ISBN-10: 1484220463 ISBN-13: 978-1484220467

3. Industry 4.0 Data Analytics31 July 2016 by Rajesh Agnihotri and Samuel New
Publisher: CreateSpace Independent Publishing Platform (31 July 2016)
ISBN-10: 1534778284 ISBN-13: 978-1534778283

4. 3D Printing: The Next Industrial Revolution4 May 2013by Christopher Barnatt
Publisher: Createspace Independent Publishing Platform (4 May 2013)
ISBN-10: 148418176X ISBN-13: 978-1484181768

5. Augmented Reality: Principles and Practice by Dieter Schmalstieg and Tobias Hollerer
Publisher: Pearson Education; First edition (5 October 2016)
ISBN-10: 9332578494 ISBN-13: 978-9332578494

LIST OF EXPERIMENTS / CASE STUDIES
Case Study & Group Work:
- Identification of areas where Smart Manufacturing can flourish
- Business Goals achieved through Smart Manufacturing
- Compilation of Results & Presentation