



THE FUTURE OF MANUFACTURING BUSINESS: ROLE OF DIGITAL TECHNOLOGIES

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Wipro 3D

INTENDED AUDIENCE : Advanced UG, PG

INDUSTRIES APPLICABLE TO : Wipro 3D; Manufacturing companies

COURSE OUTLINE :

Manufacturing is one of the key engines of a nation's progress. In recent years, the manufacturing paradigm is changing due to availability of data, improvements in communication, advancements in materials and rapid realization of end-use parts from digital data. The objective of the course is to understand future of modern manufacturing, in the context of advancements in metal additive manufacturing and delineate the consequential technology entanglements and business models.

ABOUT INSTRUCTOR :

Prof. R K Amit is currently an Associate Professor in the Department of Management Studies, IIT Madras. He completed his undergraduate studies at IIT Kanpur, and his doctoral studies at IISc, Bangalore. His research and teaching interests are game theory and decision theory, and their applications in operations management. His research has been published in top-tier journals like European Journal of Operational Research, Operations Research Letters, International Journal of Production Economics, Omega, and Journal of Cleaner Production.

Prof. U Chandrasekhar After his early education in REC-Suratkal and IIT-Madras, he worked as scientist in DRDO for about 28 years with research interests in mechanical analysis, structural integrity evaluation, integrated structural health monitoring and additive manufacturing. His doctoral research and ensuing contributions are in stereolithography based prototyping of aero gas turbine engines. He led 2 national level technology development projects in DRDO. He worked as the Director- ESCL, the Institution of Engineers (India) and also as the visiting professor in the department of mechanical engineering at IIT-Bombay.

COURSE PLAN :

Week 1: Manufacturing Paradigms

Week 2: Advances in Manufacturing and SCM

Week 3: Economics of Manufacturing

Week 4: Additive Manufacturing Technologies

Week 5: AM Materials: Functionalities of AM materials

Week 6: AM Business Functionalities: Essentials of AM plant infrastructure, Opportunities for Value Addition: Light Weighting, Part Consolidation and Topology Optimisation

Week 7: Quality: Process Certification, Industry Certifications: AS, LR etc. Impact on Sub-systems and Systems Road Mapping: Challenges in AM Adoption and Change Management Approach

Week 8: Manufacturing Architecture and Business Models for Manufacturing: Cloud manufacturing