

CHAPTER 63  
TECHNOLOGY  
PRODUCTION & INDUSTRIAL ENGINEERING

Doctoral Theses

630. KOLHE (Kishor P)  
**Some Studies of Submerged Arc Welding on Mild and Low Alloy Steel.**  
Supervisor : Dr. C. K. Datta  
Th 16908

*Abstract*

Submerged arc welding is one of the processes having high deposition rate, welding speed, deeper penetration, fewer operators fatigue and welders manipulative skill are not needed. The normal welding variables of submerged arc welding like current, voltage, travel speed and bead geometry are characterized as bead width, height, penetration, hardness and quality. mild steel and many of low alloy steel are those having good mechanical properties and having excellence weldability, mild steel is easily available and commercially used in fabrication of small, medium as well as heavy industries. Low alloy steel containing titanium, niobium, vanadium, aluminium or a combination of these elements now form important family of commercial steels than any other group of steel due to their outstanding properties like high yield strength, resistance to brittle fracture, cold formability and good weldability. These steels find extensive applications in farm industries, shipbuilding, pipelines and fabrication of important engineering component and structures including storage tanks, bridges, pressure vessel, fabrication of various farm machines.

*Contents*

1. Introduction. 2. Review of literature. 3. Experimental details. 4. Parametric study of submerged arc welding. 5. Development of mathematical model for identifying bead geometry. 6. Grain and phase analysis of submerged arc weld joint. 7. Wear and change in microstructure of low alloy steel. 8. Conclusions and scope for future study. Bibliography and Appendix.

631. PANDEY (Vivek Chandra)  
**Study of Select Issues in the Supply Chain Management of  
Advanced Manufacturing Systems.**  
Supervisors : Dr. S. K. Garg and Dr. Ravi Shankar  
Th 16798

*Abstract*

Examined the issues related to technology enablement, information sharing, performance measurement system, integration agility of the supply chain management. Four sectors of the Indian manufacturing industry namely auto, machinery, machine tools electrical/electronics have been covered. This has attempted to fill some of the gaps in the contemporary research. To indentify the need and analyze the benefit of AMT to Indian Industries factor analysis and discriminate analysis has been done using the data obtained through the questionnaire. Due to need of integration and agility in Indian Industries on ISM - based framework has been developed for acquiring integration and agility.

*Contents*

1. Introduction. 2. Literature review. 3. AMT practices and their impact in Indian organizations. 4. Sectoral analysis on AMT in SCM. 5. AMT enabled supply chain. 6. Information sharing in SCM. 7. Performance measurement system in SCM. 8. Modeling integration and agility of supply chain using interpretive structural modelling. 9. Conclusions limitations and scope for future work. Bibliography and Appendices.