Course Type	Course Code	Name of Course	L	T	P	Credit
DC	**NMSC507**	**Work Study and Ergonomics**	3	1	0	4

Course Objective
The course aims to equip students with a comprehensive understanding of work study and ergonomics principles and methodologies. Students learn to analyze work processes, optimize productivity, and enhance worker health and safety through the application of ergonomic design principles, fostering efficiency, and well-being in diverse workplace environments.
Learning Outcomes
Apply work study techniques to analyze and optimize work processes for increased efficiency and productivity. Evaluate ergonomic factors in work environments to design safe and comfortable workstations, tools, and tasks. Identify ergonomic risks and implement interventions to prevent injuries and promote employee well-being. Integrate work study and ergonomics principles to create holistic solutions for improving work systems. Communicate effectively with multidisciplinary teams to implement work study and ergonomic recommendations.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	**Introduction to Productivity Management:** Concept of Productivity- Partial and Total Productivity, Productivity management cycle, Employee Engagement and Motivation, Resource Allocation and Management.	5L+1T	Students will demonstrate the ability to analyze organizational processes, identify productivity drivers, and implement strategies to optimize resource utilization,
2	**Introduction to Work Study and Method study:** Steps for conducting method study, Charts and diagrams for conducting method study, Rate of Worker Engagement on particular task.	9L+2T	Students will demonstrate competence in conducting work study and method study analyses
3	**Work Measurement Techniques:** Time study, Work Measurement, Analytical Estimation etc., and their application, like wage and incentive for employee. Rate of worker engagement.	10L + 3T	They will demonstrate the capability to accurately assess and quantify work activities, optimize productivity, and contribute to the efficient design and management of work processes across different industries.
4	**Introduction to Ergonomics:** Significance, Manual work design, musculoskeletal disorders, cumulative trauma disorders, Repetitive strain injuries, Common Causes, Signs, Symptoms, Cost.	9L+4T	Students will possess a foundational understanding of ergonomics principles and their applications in various work settings
5	**Ergonomics Application:** Anthropometry, Workstation, and Facilities Design, Repetitive Task Risk Assessment and Task Design, Fatigue, Stress and Recovery, Environmental Factors Like Heat Stress, Noise, and Vibration level in the industry	9L+4T	Student will demonstrate the ability to assess ergonomic risks, design ergonomic workspaces, equipment, and tasks, and promote worker health, safety, and performance, thereby contributing to a productive and sustainable work environment
	TOTAL	**42L +14T**	

Text Books:

1. Work Study and Ergonomics , Lakhwinder Pal Singh (2018), Cambridge University Press

2. Productivity engineering and management: productivity measurement, evaluation, planning, and improvement in manufacturing and service organizations, Sumanth, D. J. (1984). McGraw-Hill College.

3. Niebel's methods, standards, and work design (Vol. 700), Freivalds, A. (2009). Boston, Mass.: Mcgraw-Hill higher education.

References:

1. Motion and time study: design and measurement of work, Ralph, M. B. (1980), John Wiley & Sons