

# DM512 Ergonomics in Product and Facility Design

(2-0-2-6)

## Course Content

Fundamental of Ergonomics: Definitions and domain of specializations (Physical, Cognitive, and Organizational Ergonomics), Ergonomics Vs. Human Factors, System Design Approach in Ergonomics, Importance of Ergonomics/ Human Factors, Ergonomics in Design Process; Human capabilities and limitations: Anthropometric, Biomechanical, Physiological, Behavioural, and Psycho-social considerations; Occupational Stress and Musculoskeletal Disorders, Safety and Health issues; Physical Environmental aspects and human performance: Temperature, Illumination, Relative Humidity, Air-Flow, Noise, and Vibration; Cognitive aspects of user-system interactions: Special senses, Information acquisition and processing (Sensation, Perception, Cognition, Attention, Memory, etc.) and Motor response, Human Error, and Reliability; Design development and usability evaluation, Principles of hand-tool design, Principles of control-display design, Human factors in personal protective equipment (PPE) design

## Text/ References

1. Kroemer, K. H. (2017). **Fitting the human: Introduction to ergonomics/human factors engineering**. CRC Press.
2. Bridger, R. (2017). **Introduction to human factors and ergonomics**. CRC press.
3. Soares, M. M., & Rebelo, F. (Eds.). (2016). **Ergonomics in design: methods and techniques**. CRC Press.
4. Shorrock, S., & Williams, C. (Eds.). (2016). **Human factors and ergonomics in practice: Improving system performance and human well-being in the real world**. CRC Press.
5. Stone, N. J., Chaparro, A., Keebler, J. R., Chaparro, B. S., & McConnell, D. S. (2017). **Introduction to human factors: Applying psychology to design**. CRC Press.
6. Kellogg, R. T. (2015). **Fundamentals of cognitive psychology**. Sage Publications.