

ST. JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM
VII SEMESTER HOME SCIENCE TIME:4Hrs/Week
HS-E1-7104ERGONOMICS FOR BETTER LIVINGTHEORY
MARKS:100

Course objectives:

- Ergonomics aims to improve the quality of life for individuals by designing work-systems that are compatible with their needs, abilities, and limitations
- The objective of ergonomics is to contribute significantly to productivity, product quality, service, and worker well-being, ultimately reducing costs and improving the economy and productivity .

Course outcomes:

To enable the students to:

1. Understand the scope and importance of ergonomics
2. Be aware of types of and minimizing effort
3. Identify and analyse working postures and common postural problems
4. Awareof ergonomic consideration in furniture design
- 5.

THEORY

UNIT-I

- Ergonomics – Definition, Scope and Importance of Ergonomics
- Elements of ergonomics –
 - i. Work & work environment
 - ii. Anthropometry & bio-mechanics,
 - iii. Human factors & human engineering.

UNIT-II Ergonomics & Worker

- Nature of work- types of effort, minimizing effort
- Man-Machine-Environment System, Anthropometrics–structural dimensions
- Design for extreme individuals, for adjustable range, for average;

UNIT-III

- Work Physiology – factors affecting, Work posture - identifying and analysis of postures, common postural problems.
- Fundamentals of work physiology – Measurement of Physiological cost of work -energy cost, cardiovascular stress (ECG), heart rate monitor.
- Muscular Skeletal Problem (measuring the angle of deviation), Frequency of Postural Change, Grip Muscular Fatigue.

UNIT-IV

Work Place Design

- Design Criteria for Workplace – Work Surface Design Consideration – Psychological Aspect/ Ergonomics Approach of Work Place Design – Development Criteria
- Ergonomic Considerations for Design of Physical Facilities – Ergonomic Criteria for Designing Products

UNIT-V

- Ergonomics and Furniture -Guidelines for design of chairs and beds;
- Furniture for elderly and physically challenged;
- Some ergonomic considerations for appliances, entrances and furniture.

REFERENCES:

1. Veena Gandotra, Krishna Oberoi, Promila Sharma (2005), “Essentials of Ergonomics”, Dominant publishers and distributors, Delhi.
2. S.K.Sharma& Savita Sharma, Work Study & Ergonomics, S.K.Kataria& Sons
3. R.S. Bridger, Introduction to Human factors and Ergonomics, CRC Press, 4th Edition
4. Manjit Kaur Chauhan, (2016). Ergonomics Practical Manual for Beginners, Authorpress, 1st edition