

HUMAN ENGINEERING AND SAFETY		Semester	IV
Course Code	BAG456D	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	(1:0:0:0)	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	01	Exam Hours	01
Examination nature (SEE)	Theory		
Course Objectives: <ul style="list-style-type: none">To acquaint and equip with the ergonomic aspects in the design of farm machinery and equipment and safety aspects of human subjects.			
Teaching-Learning Process (General Instructions) <p>These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.</p> <ol style="list-style-type: none">Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Video demonstrations or Simulations.Chalk and Talk method for Problem Solving.Arrange visits to show the live working models other than laboratory topics.Adopt collaborative (Group Learning) Learning in the class.Adopt Problem Based Learning (PBL), which fosters students Analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.Conduct Laboratory Demonstrations and Practical Experiments to enhance experiential skills.			
Module-1			
Human factors: Human factors in system development – concept of systems. Basic processes in system development, performance reliability, human performance. Information input process.			
Module-2			
Displays: Visual displays, major types and use of displays, auditory and tactual displays. Speech communications			
Module-3			
Biomechanics: Biomechanics of motion, types of movements, Range of movements, strength and endurance, speed and accuracy, human control of systems. Human motor activities, controls, tools and related devices.			
Module-4			
Anthropometry and Atmospheric conditions: Anthropometry - arrangement and utilization of work space, atmospheric conditions, heat exchange process and performance, air pollution.			
Module-5			
Safety regulations: Dangerous machine (Regulation) act, Rehabilitation and compensation to accident victims, Safety gadgets for spraying, threshing, Chaff cutting, Power tiller and tractor & trailer operation etc.			
Course outcome (Course Skill Set) <p>At the end of the course the student will be able to :</p> <ol style="list-style-type: none">Equip with the ergonomic aspects in the design of farm machinery and equipmentEquip with the safety aspects of human subjects.			
Assessment Details (both CIE and SEE) <p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50)in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together</p>			
Continuous internal Examination (CIE) <p>Three Tests (preferably in MCQ pattern with 20 questions) each of 20 Marks (duration 01 hour)</p> <ol style="list-style-type: none">First test at the end of 5th week of the semester			

2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

1. First assignment at the end of 4th week of the semester
2. Second assignment at the end of 9th week of the semester

Quiz/Group discussion/Seminar, any two of three suitably planned to attain the COs and POs for **20 Marks**
(duration 01 hours)

The sum of total marks of three tests, two assignments, and quiz /seminar/ group discussion will be out of 100 marks and shall be **scaled down to 50 marks**

Semester End Examinations (SEE)

SEE paper shall be set for 50 questions, each of 01 mark. The pattern of the question paper is MCQ (multiple choice questions). The time allotted for SEE is **01 hour**. The student has to secure minimum of 35% of the maximum marks meant for SEE.

Suggested Learning Resources:

Books

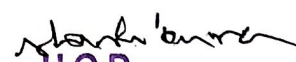
1. Bridger, R.S. Introduction to ergonomics, 1995. McGraw Hill, INC, New York.
2. Charles D Reese. Accident / incident prevention techniques, 2001. Taylor and Francis, London.
3. Gavrielsalvendy,. Hand book of human factors and ergonomics,1997. John Wileyand sons, INC, New York.
4. Kromer, K.H.E. Ergonomics, 2001. Prentice hall, Upper saddle river, NJ 07458.
5. William D. McArdle. Exercise physiology, 1991. LEA andFEBIGER, London.

Web links and Video Lectures (e-Resources):

- <http://www.osha.gov/SLTC/ergonomics>
- <http://www.ergonomicsusa.com>
- http://www.masterytech.com/productpage.php?product_id=clmimsdt
- <http://www.samaras-assoc.com/ergonomics.htm>
- <http://www.ergonomics4schools.com/lzone/anthropometry.htm>
- <http://www.brianmac.co.uk/biomechanics.htm>
- http://www.d.umn.edu/~mlevy/CLASSES/.../esat3300_intro.htm
- <http://www.websters-dictionary-online.org/wo/work+physiology.html>
- <http://www.ufv.ca/faculty/kpe/.../physiology%203r/workphysio3.ppt>
- <http://www.chiroweb.com/archives/18/07/06.html>
- <http://www.brianmac.co.uk/oxdebit.htm>
- <http://www.osha.gov/SLTC/heatstress>
- http://www.plantstress.com/Articles/heat_i/heat_i.htm
- <http://www.hoptechno.com/book41.htm>
- <http://www.tuolumnejpa.org/Cold%20Stress.pdf>
- http://www.ginmiller.com/gmf06/articles/.../RPE_talk_test.html
- <http://www.cdc.gov/physicalactivity/everyone/.../exertion.html>
- http://www.laxpart161.com/en/noise_effects_LAX.pdf

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Quizzes
- Assignments
- Seminars


H.O.D.

Dept. of Agricultural Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodubidire - 574225