

UNIVERSITY OF MUMBAI



CERTIFICATE COURSE

WORKSTATION DESIGN AND APPLIED ERGONOMICS

Conducted by:

College of Home Science, Nirmala Niketan
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ABOUT THE COLLEGE

Nirmala Niketan, College of Home Science & Polytechnic, is a Christian institution, managed by a Society, registered under the Societies Registration Act, 1860 and a Public Trust Act 1950 and all of those who are members of the congregation of the Daughters of the Heart of Mary in India, The Society is managed by a Governing Body whose Ex-officio Chairperson is the Provincial of the Province of India of the Daughters of the Heart of Mary.

The College of Home Science is affiliated to the University of Mumbai. It is located in the heart of the Mumbai city and is easily accessible since it is within walking distances both from the Western and Central railway terminus.

VISION OF THE COLLEGE

The college aims at the total development of the Indian Women, by providing learning opportunities to empower her with knowledge, skills and attitudes, to face personal and professional challenges with confidence, inculcating values of respect, commitment and concern for the service of others, thereby enabling her to make a positive contribution to the society in the 21st century.

GOALS OF THE COLLEGE

The College aims at the development of women through an education that is Life – oriented; Career – oriented; and Community – oriented.

ABOUT THE COURSE

Ergonomics is a branch of science that focuses on optimizing the relationships between workers and their work environment. This certificate course is an innovative programme that focuses on the applications of ergonomics and the health and safety of the worker. The course consists of lectures on how knowledge of ergonomics can be applied to developing workstations to suit the worker and thus enhance productivity.

OBJECTIVES

The course aims to help students to:

- Study methods and techniques for job and workstation evaluation and thus enable students to identify potential hazards that contribute to work-related musculoskeletal disorders.
- Understand how to design workspaces for a diverse work population.
- Learn how to design work environment that prevent excessive exposure to light, heat, noise and vibration.
- Provide students with practical experience using some of the methodologies.

ELIGIBILITY

A candidate, for being eligible for admission to such certificate courses, shall have enrolled himself/herself and taken admission to any of the undergraduate or post graduate courses under faculty of science in the constituent/affiliated colleges/ recognised institutions of any University offering Ergonomics as one of the subjects in the programme.

A candidate, who has successfully passed/pursuing the B.Sc. or M.Sc. CRM/FRM degree or Interior Design/Decoration degree or diploma courses under any university, shall be eligible to enrol himself/herself for such certificate courses being conducted in the constituent/affiliated colleges/recognised institutions of the University of Mumbai.

A candidate, who is regular student, shall pursue such Certificate Courses simultaneously while he/she is studying for his/her B.Sc. or M.Sc. Degree of University of Mumbai.

DURATION

The certificate course shall be an add-on course and shall be conducted for 12 weeks in the first term of the academic year. Notwithstanding the above – Summer/Diwali/X-Mas vacation, if need be shall be suitably utilized for the completion of such Certificate Courses.

Each Certificate Course shall consist of Two Theory papers (100 marks each x 2 = 200 marks). Practical (50 marks), Industrial visit (report-writing) and Viva-Voce (50 marks), Project (50 marks); thus totalling to 300 marks.

Each Certificate Course shall be covered in 64 lectures (36 lectures per paper i.e. 9 lectures per unit), 12 practical (3 hours per week for 12 weeks) and 8 hours project guidance per batch.

FEES

Each student shall pay Rs. 3500/= for the certificate Course

FACULTY

Expertise in the related field shall be invited as resource persons for this Certificate Course

SCHEME OF EXAMINATION

The examination will be conducted after 12 weeks from the commencement of the certificate course. The examination shall consist of the following Heads of Passing, maximum marks assigned to each head and minimum marks required for passing each head as detailed in the following table:

Course Code	Heads of Passing	Credits Allotted	Maximum Marks	Minimum Marks
101	Work Station Design (Theory)	4	100	40
102	Applied Ergonomics (Theory)	4	100	40
P101	Practical	2	50	20
P102	Industrial Visit, Report writing & Viva Voce	2	50	20
Total		12	300	120

FORMAT OF THEORY PAPER

- There shall be two papers of 100 marks each
- Each theory paper shall be divided into 4 units (Units I to IV) of 25 marks each.
- Each theory paper shall be of three hours duration.
- Each theory paper shall contain questions based on Units I to IV respectively.

FORMAT OF PRACTICAL

- There shall be 12 practical of three hours duration each per week.
- Each candidate shall maintain a journal as a record of practical performed by her/him.
- Each journal, satisfactorily completed shall be certified by the faculty and the Head of the specialization/department.
- Practical exam shall be of five hours duration with a small break of 15 minutes after 03 hours.

INDUSTRIAL VISIT AND REPORT

- Each batch of students shall conduct field investigations with the subject teacher to identify potential ergonomic hazards, associate these hazards with specific musculoskeletal disorders, and devise control strategies to reduce these disorders through good work practices, administrative, and engineering controls.
- Each student shall prepare the field reports will include an introduction, background, materials and methods, discussion, results, and references.
- Each Industrial visit report shall be duly certified by the subject teacher and the Head of Specialization.
- Each industrial visit report shall have to be submitted for evaluation within one week of the conclusion of the theory or practical exam whichever is later.

PROJECT (Non-experimental based)

- Each student shall undertake a project (30 - 40 pages).
- Project may be one of the following types:
 - Feasibility report of any industrial project.
 - Literature survey on any industrially important compound.
- Compilation of technical information with respect to good work practices, administrative, managerial and engineering controls
- Each project shall have to be duly certified by the subject teacher and the Head of the Specialization.
- Each project shall have to be submitted for evaluation within one week of the conclusion of the theory or practical exam whichever is later.

VIVA VOCE

- Each student shall have to appear for a viva-voce exam that will be based on the entire course content, i.e. theory, practical, industrial visit and project report.
- Viva-voce exam shall be conducted by the subject teacher on the specified day after the conclusion of theory and practical exam and the submission of Industrial Visit Report and the Project Report.

STANDARD FOR PASSING THE COURSE

- A candidate shall be declared to have successfully passed the certificate course, if she/ he has scored minimum marks in each Head of Passing i.e. 40 marks in each Theory paper, 20 marks in Practical,

- ## Paper - I: Workstation Design

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	a) Pathway Chart, b) Process Chart, c) Operation Chart.	
II.	Environmental Ergonomics: Measurements of a) Noise level In different Working Areas b) Illumination Levels By Luxmeter In different working areas Calculating the Physiological Cost of Work a) Step Test method b) Heart rate Method c) Energy Expenditure Body Composition Analyzing Postures adopted during work using OWAS Method	3 3 6 3 3

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