Subject Description Form

Subject Code	CSE39481
Subject Title	Human Psychology & Physiology
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject aims to expose the students to the underlying physiological mechanisms of behavior, in particular the stresses, tensions and other physical and mental issues experienced by humans in the different environments. Applications of clinical knowledge of human response to alarms, evacuation movement, timed egress analysis, as well as the effect of fire and combustion products on human beings will be discussed.
Intended Learning Outcomes	Upon completion of the subject, students will be able : a. To understand the fundamental principles of human psychology and physiology; b. To understand the importance of physical and mental issues experienced by humans in different environments; c. To understand the fire initiation and development. d. To understand Occupant Characteristics and evacuation. e. To recognize the need for, and to engage in life-long learning.
Subject Synopsis/ Indicative Syllabus	1.Introduction A brief history of ergonomics and human factors including their definitions. Introduction to the principles of ergonomics and the areas of applications to ergonomic hazard analysis and control. 2. Human Physiology Principles of human physiology. Performance of physical work, fatigue, and responses to environmental stress. Physiological response. 3. Human Psychology Principles of human psychology. Application of fire modeling results. Simulation of compartment fire, atrium fire, tunnel fire.. Mental workload. Sensation and perception. Methods to improve ability of information processing. Error identification and management. 4. Engineering Psychology and human performance. Behaviour pattern of humans faced with emergencies. Reaction to alarms. Reaction to stress and its mitigation. Evaluation of fire engineering system and assess the impact on people.

<table>
<tr><td>Teaching/Learning Methodology</td><td>The lecture will cover various human psychology & physiology elements in different environments and applications for improving health and safety performance. During the study, students are required to search for related literatures or articles to support what they have learnt. Continuous assessment consists of case studies, written report and presentation, and seminar report.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% Weighting</td><td colspan="5">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td></tr>
<tr><td>1. Case Studies</td><td>10</td><td></td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>2. Presentation</td><td>10</td><td>✓</td><td>✓</td><td>✓</td><td></td><td>✓</td></tr>
<tr><td>3. Written Report</td><td>10</td><td>✓</td><td>✓</td><td>✓</td><td></td><td>✓</td></tr>
<tr><td>4. Seminar Report</td><td>10</td><td></td><td></td><td></td><td>✓</td><td></td></tr>
<tr><td>5. Final Examination</td><td>60</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Total</td><td>100</td><td colspan="5"></td></tr>
</table>
Students must attain at least grade D in both coursework and final examination (whenever applicable) in order to attain a passing grade in the overall result.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The coursework include case studies, written report submission, seminar report submission and presentation. The reports are used for assessing student’s ability to think critically and solve the problems when working individually. The course work also requires the students to work in groups. They need to explain case studies or problem set questions and then elaborate their answers both in written format and orally in class.

Examination is used to gauge how much students have understood the overall subject contents and to assess students’ achievement of the learning outcomes.
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<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td>Average hours per week</td></tr>
<tr><td>▪ Lectures / Tutorials</td><td>3 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Coursework</td><td>2.5 Hrs.</td></tr>
<tr><td>▪ Self- study</td><td>3.5 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>9 Hrs.</td></tr>
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Reading List and References	**Essential Textbook/Publications:** Bridger R. S. (2003). *Introduction to Ergonomics.* (Second Edition). London: Taylor & Francis. Christopher D. Wickens, Justin G. Hollands (Author), Simon Banbury, Raja Parasuraman. (2016).*Engineering Psychology and Human Performance.* (Fourth Edition). London: Taylor & Francis . Buildings Department Code of Practice for Fire Safety in Building 2011. BSI Standards Publication PD 7974-6:2019 Application of fire safety engineering principles to the design of buildings. **Reference Textbooks:** Kroemer, K. H. E., Kroemer, H. B. and Kroemer-Elbert, K. E. (2000). *Ergonomics: How to Design for Ease and Efficiency*. (Second Edition). Englewood Cliffs, N.J: Prentice Hall. HSE. *Human Factors in Industrial Safety*. Booklet HS (G) 48. HMSO 1989. HSE. *Stress at Work: A Guide to Employers*. HS (G) 116. HMSO 1995. A.I. Glendon and E.F. McKenna. *Human Safety and Risk Management*. Chapman & Hall 1995.