

HFS105 Cognition and Information Processing

Level: 1

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY REGULAR SEMESTER

Synopsis:

Designing artifacts, products and systems that improve human performance requires a good understanding of human information processing capabilities and limitations. This course provides an essential introduction to several important areas in cognitive psychology. Students are firstly introduced to lower level cognitive processes such as sensation and perception, attention and memory. In the later part of the course, students will study higher level cognitive processes such as decision making, learning and languages. The relevance of each topic to the design and evaluation of systems and human factors studies will be highlighted and discussed.

Topics:

- 1.1.1: Cognition & Human Factors; 1.1.2: The Information-Processing Model; 1.2.1: Partial Report Procedure; 1.2.2: Types of Sensory Memory; 1.2.3: Word Superiority Effect
- 1.3.1: Bottleneck Theories of Attention; 1.3.2: Capacity Theories of Attention; 1.3.3: Automatic Processing
- 1.3.4: Applying Attention in Task Performance; 2.1.1: Functions and Characteristics of Short Term Memory (STM); 2.1.2: Failures of STM; 2.1.3: Baddeley's Working Memory Model
- 2.2.1: Functions and Characteristics of Long Term Memory (LTM); 2.2.2: Failures of LTM
- 3.1.1: Classifying Problems; 3.1.2: Newell & Simon's Theory; 3.1.3: General Problem-Solving Strategies
- 3.2.1: Making Choices; 3.2.2: Probabilities; 3.2.3: Risk Dimensions; 3.2.4: Decision-Making Applications

Textbooks:

HFS105 Study Guide (UDC - SUSS) SUSS
ISBN-13: SG-1346

Engineering psychology and human performance 5th Routledge Wickens, C. D., Helton, W. S., Hollands, J. G., & Banbury, S. Routledge
ISBN-13: 9781000401356

Learning Outcome:

- Define cognitive processes relevant to safety during task performance.
- Describe cognitive capabilities and limitations.
- Discuss cognitive demands of various tasks and their impact on task performance.
- Explain solution designs in relation to cognitive theories.
- Illustrate how solutions can be improved using cognitive theories.
- Apply cognitive theories to design solutions.

Assessment Strategies - Regular Semester (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	TUTOR-MARKED ASSIGNMENT 1	10
	TUTOR-MARKED ASSIGNMENT 2	10
	QUIZ 1	10
Overall Examinable Components	Written Exam	70
Total		100

*The information listed is subject to review and change.