

ID	713
Curricular Unit	Design of Complex Systems
Regent	José Domingos Carvalhais
Learning Outcomes	<ul style="list-style-type: none"> - To understand the components of a complex sociotechnical system. - To understand the need of interaction and integration of sociotechnical system components. - To understand ergonomics/human factors role in the design of complex sociotechnical systems.
Syllabus	<ol style="list-style-type: none"> 1. Ergonomics and systems. 2. Systems – Human-Machine systems. 3. System design process – Traditional model and alternative approaches. 4. Incorporating Ergonomics in the design of complex systems. 5. Dimensions of complex systems – Safety, efficiency and comfort. 6. Comparison of complex systems – Recommendations. 7. Safety models. 8. Safety culture. 9. Case studies.
Evaluation	<p>2 options:</p> <ul style="list-style-type: none"> - Continuous evaluation – Practical work in class. - Final evaluation – Final exam.
Bibliography	<p>Boy, G. (2013) Orchestrating Human-Centered Design. Springer.</p> <p>Carayon, P. (2006) Human factors of complex sociotechnical systems. Applied Ergonomics, 37, 525-535.</p> <p>Czaja, S.; Nair, S. (2006) Human factors engineering and systems design. In Handbook of Human Factors and Ergonomics - Gavriel Salvendy Editor, Wiley, John Wiley & Sons, Inc.</p> <p>Hendrick, H.; Kleiner, B. (2002) Macroergonomics – Theory, Methods and Applications. Lawrence Erlbaum Associates.http://www.w3.org/</p>