E-MTOM100 Human-Technology-Organization / Human Factors

Short summary

This course was originally developed and offered in collaboration with Statoil (now Equinor), Petroleum Safety Authority, and Institute for Energy technology (IFE).

It covers issues, theories, principles and practices related to Human-Technology-Organization (HTO) interaction and Human factor (HF) aspects in complex engineering systems and environments. Through a blend of theory lessons and exercises participants will gain a greater understanding of HTO and HF challenges and higher qualifications to consider different forms of issues in HF / MTO practice. Risk and Complex systems perspective will be the core of the course, which also includes models, methodologies, and standards at both the macro level and micro level in modern industrial systems in Public and Private sectors.

Bringing different disciplines and business expertise together to address and utilize different perspectives of HTO projects, is central to the course. It is divided into 5 sections; (1) Introduction to HTO / HF, human characteristics, assumptions, and limitations, (2) Human error, Human reliability, and Behavior perspectives (3) Human in Engineering and Technology perspective (4) Human in Organizational perspective (5) Human in Systems and Digital systems perspective.

Content

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Learning outcome

Knowledge on various human-technological-organizational / human factor aspects related to design, operations, and management of complex technical systems in different industrial settings that can help minimizing unwanted events as well as increasing productivity.

After having taken this course the students are expected to have the following knowledge, skills and general competence:

Kunnskap/Knowledge

- Knowledge and understanding on the critical interface between human, organizational, and technological aspects in the design and operation of complex systems
- Up to date knowledge on the theories and principles on human factors engineering
- The interface between human-technology-organization and Systems risk
- Dealing with complex interfaces in the design and deployment of complex technological systems
- Understanding of Systems perspective in managing technically and operationally complex environments.

Ferdigheter/Skills

- Application of tools, methods, and techniques to improve safety and productivity in work systems
- Ability to analyze the complexities of interaction between technology, humans and organizational processes
- Integration of complex human and organizational aspects in the design and operation of engineering systems

Generell kompetanse/General competence

- Importance of human factors in modern technical system design and operations
- Awareness of risk associated with the negligence of critical human-technology-organization interfaces
- Critical review of work systems in terms of human factors and organizational aspects.

STUDENTEV - Emneevaluering - Studentsider

Standard forms and/or discussions

Vurdering tilleggstekst

Final assessment is based on Written reports for each Module separately, with equal weights on the Final grade.

Assessment: A-F grading.

Obligatoriske undakt. tilleggtekst

Reports and Presentations for each Course Module, based on Individual or Group work.

Assessment: Approved / Not approved.

Method of work

Lectures, Interactive discussions, Reports and Presentations based on Individual / Group work.

Lectures will be held in English language.

Litteratur/pensum Leganto

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