Human-Technology-Organization / Human factors

Prof. Jayantha P. Liyanage 51 83 1440 / j.p.liyanage@uis.no

Emnekode/Course code: (FX-MTO-100)
Emnenavn/Course name: Human-Technology-Organization / Human factors
Studiepoeng/Number of study points (ECTS): 10
Semester/ Semester: Høsten / Fall
Emnenivå/Course level: Master

Emnet er knyttet til studieprogram/Studypogramme:
Experience based master in Technology and operations management

Innhold/Content:
This course is developed and offered in collaboration with Statoil, 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 measures 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 systems.

Bringing different disciplines and business expertise together to address and exploit the different perspectives of HTO projects is central to the course. It is divided into 4 modules; (1) Introduction to HTO / HF, human characteristics, assumptions, and limitations, (2) Organizational relationships and work processes (3) Design and operation of complex technological systems, (d) Systems perspective of complex technological environments.

Arbeidsformer/Method of work:
Lectures, Interactive discussions, Group work.
Lectures will be held in English language.

Læringsutbytte/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.

Vilkår for å gå opp til eksamen / Obligatoriske arbeidskrav/ Requirements to sit for the exams/Required activities/courses:
Attendance to the 1st introductory lecture, Group work, Obligatory written reports, and oral presentations.

Vurderingsformer/ Forms of assessment:

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<tr>
<th>Assessment</th>
<th>Weight</th>
<th>Duration</th>
<th>Tools</th>
<th>Grade</th>
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<tbody>
<tr>
<td>Written reports and Oral presentations</td>
<td>100%</td>
<td>All</td>
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<td>A-F</td>
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Litteratur/pensum/ Literature:
Compendium ‘Human-Technology-Organization / Human factors’.
Emneansvarlig/andre fagpersoner på emnet/Responsible subject lecturer(s)/other responsible lecturers:

Course leader:
Prof. Jayantha P. Liyanage (University of Stavanger)

Lecturers:
Prof. Jayantha P. Liyanage and Prof. Preben Lindøe (University of Stavanger)
Dr. Erik Bjerkebæk and Arne Jarl Ringstad (Statoil)
Elisabeth Lootz and Sigve Knudsen (Petroleum Safety Authority)
Jan Heimdal (Institute for Energy Technology, IFE)