KURSPLAN
Human-System Integration, 7,5 högskolepoäng

Human-System Integration, 7.5 credits

Kurskod:	TS4S22	**Utbildningsnivå:**	Avancerad nivå
Fastställd av:	VD 2021-03-01	**Utbildningsområde:**	Tekniska området
Reviderad av:	Utbildningschef 2023-08-22	**Ämnesgrupp:**	AE1
Gäller fr.o.m.:	2024-01-01	**Fördjupning:**	A1F
Version:	2		

Lärandemål

After a successful course, the student shall;

Kunskap och förståelse
- display knowledge of human-centred design approaches for industrial complex systems
- display knowledge of resilience engineering concepts
- display knowledge of the dynamics of making a change to a complex system

Färdighet och förmåga
- demonstrate the ability to independently design and develop systemic integration models for complex interactions
- demonstrate the ability to articulate the mutually dependent set of priorities, perspectives, and practices that an organisation needs to carry out
- demonstrate the ability to analyse how work activities take place either retrospectively or prospectively

Värderingsförmåga och förhållningssätt
- demonstrate the ability to assess variability in socio-technical systems. including patterns of human-systems performance
- demonstrate the ability to assess the state of resilience in connection with organizational performance

Innehåll

The course provides knowledge and insights about the role of humans and organizations in the design of complex systems, regarding new technologies, people and organizations that are or will be using them, with the central issue of coordination of autonomous (or semiautonomous) agents. This also includes methods and tools to enable moving from rigid automation to flexible autonomy.

The course includes the following elements:
- Emergent functions and structures within an active system of systems
- Resilience and state-space transitions

- Work as Imagined versus Work as Actually Done
- Synetic change management
- Functional Resonance Analysis Method
- Organization-driven and Human-driven Flexibility of Sociotechnical systems
- Multi-agent co-adaptive systems

Undervisningsformer

The teaching consists of lectures, seminars and exercises performed individually and in groups.

Undervisningen bedrivs på engelska.

Förkunskapskrav

Kurser omfattande minst 150 hp inom programmet ska vara godkända inklusive Produkt- och processergonomi 7,5 hp och Industriella produktionssystem 7,5 hp samt Intelligent dataanalys 7,5 hp (eller motsvarande kunskaper).

Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd.

The final grade for the course is based on the grade of the seminars. The final grade will only be issued after satisfactory completion of all assessments.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Projekt	2,5 hp	U/G
Examination	5 hp	5/4/3/U

Kurslitteratur

Kurslitteraturen fastställls 8 veckor innan kursstart.

Boy, Guy André. Design for flexibility: a human systems integration approach. Springer Nature, 2021
Hollnagel, Erik. Synesis: The Unification of Productivity, Quality, Safety and Reliability. Routledge, 2021.

Literature available in digital format from Primo (JU library system)