

Cognitive Systems Engineering (5 Days)

Day 1

1. Introduction (1.00 hour)

- Introducing the course & your instructor (30 mins)
- Course Overview (30 mins)

2. Information Management Exercise (1.00 hour)

- Team Cognition (group exercise & debrief, 60 mins)

3. Cognitive Task Analysis Part 1 (2.5 hours)

- Naturalistic Decision Making (60 mins)
- Decision Centered Design (90 mins)

4. Cognitive Task Analysis Part 2 (1.00 hour)

- Macro-Cognition (60 mins)

5. Cognitive Task Analysis Part 3 (1.00 hour)

Applied Cognitive Task Analysis (60 mins)

Video: Cognitive Systems Engineering for Systems Engineering (0.5 hours)

Cognitive Systems Engineering (5 Days)

Day 2

6. Cognitive Task Analysis Part 4 (1.5 hours)

- Team Cognition (45 mins)
- Decision Centered Design for Teams (45 mins)

7. Organizational Cognition (2.0 hours)

- Organizational Cognition(45 mins)
- Cognitive Task Analysis for Organizational Cognition(45 mins)
- Cognitive Task Analysis; Summary Review (30 mins)

8. What is Cognitive Systems Engineering? (1.5 hours)

- Introduction to Cognitive Systems Engineering (60 mins)
- The Nature of Cognitive Work (30 mins)

9. Entry to Systems Analysis (1.0 hour)

- System Boundary Analysis (60 mins)

10. Cognitive Work Analysis, Part 1 (0.75 hours)

- What is Cognitive Work Analysis? (30 mins)
- The Movie; What is Cognitive Work Analysis? (15 mins)

Introductory thoughts on design (video) (optional extra)

Cognitive Systems Engineering (5 Days)

Day 3

11. Cognitive Work Analysis, Part 2(2.5 hours)

- Work Domain Analysis Introduction(60 mins)
- Work Domain Analysis (Foundations) (60 mins)
- Work Domain Analysis (Issues) (30 mins)

12. Cognitive Work Analysis, Part 3 (2.5 hours)

- Work Domain Analysis (Reprise) (15 mins)
- Work Organization Analysis (75 mins)
- Social Transactions Analysis (60 mins)

13. Cognitive Work Analysis, Part 4 (2.00 hours)

- Work Domain Analysis, Joker One (30 mins)
- Work Organization Analysis, Joker One (45 mins)
- Social Transactions Analysis, Joker One (45 mins)

Cognitive Systems Engineering (5 Days)

Day 4

14. Cognitive Work Analysis, Part 5 (3.0 hours)

- Work Task Analysis, Joker One (45 mins)
- Cognitive Strategies Analysis & Cognitive Competencies Analysis (45 mins)
- Work Domain Analysis; Problem versus Solution Space (15 mins)
- Design a “Divert” Command & Control system (group exercise, (45 mins)
- Decision Ladders for Recognition-Primed Decisions (optional)
- Cognitive Work Analysis; Summary Review (15 mins)

15. Cognitive Performance Metrics (2.0 hours)

- Cognitive Indicators (30 mins)
- Cognitive System Metrics (30 mins)
- Situation Awareness (30 mins)
- Planning (30 mins)

16. Cognitive Requirements (1.0 hour)

- Cognitive Requirements (60 mins)

17. Cognitive Work Analysis Exercise (1.0 hour)

- Plan the analysis of a system you know (60 mins)

Cognitive Systems Engineering (5 Days)

Day 5

18. Innovation for Cognitive Design (1.5 hours)

- Concept Development (90 mins)

19. Cognitive Design (2.0 hours)

- Cognitive Design Patterns (60 mins)
- Functional Interface Design (60 mins)

20. Why Systems Work (1.25 hours)

- Why Systems Work (45 mins)
- Return on Investment (30 mins)

21. Spot the cognition (1.0 hours)

- Movie; Houston, we have a problem! (60 mins)

22. Summary (0.75 hours)

- Summary Review of Workshop (30 mins)
- Workshop Evaluation (15 mins)