MIT | xPRO

Architecture of Complex Systems
Schedule

Note: Items preceded by a star (✯) are graded with due dates in red below.

WELCOME TO THE COURSE (35 min)

In the first section of the course, you'll take a Pre-Assessment to get a baseline of your understanding of the course material. During this period, you'll become familiar with the platform and course design.

- Entrance Survey (5 min)
- ✯ Pre-Assessment (15 min)
  Due by the end of the course
- Welcome (3 min)
- Discussion Forum (5 min)
- Course Webinars (5 min)
- Teams (3 min)
- Who's in the Course? (3 min)
- Who's Teaching the Course (4 min)
- Follow Us (1 min)

WEEK 1: SYSTEMS THINKING (4-6 hrs)

In the first week, you'll be introduced to Systems Thinking while focusing on form and relationships among form.

- Key Ideas (4 min)
- Opening Activity (15 min)
- Defining Systems Thinking (15 min)
- Systems and Emergence (20 min)
- Four Tasks of Systems Thinking (30 min)
- Architecture and Form (40 min)
- ✯ Graded Activity (15 min)
  Due by the end of the course
- ✯ Project (1 hr 30 min)
  Written submission and self-assessment due at end of the first week
- Key Takeaways (2 min)

Live Event This Week
Course Orientation Webinar
More information in Welcome to the Course > Course Webinars section

WEEK 2: FUNCTION AND EMERGENCE (4-6 hrs)

In week two, you will move from form to function. First, you will focus on concepts regarding function. Second, you will be introduced to form and function in system architecture. Finally, you will close the week with documentation of systems, a key component for the success of complex systems.

- Key Ideas (2 min)
- Product System (15 min)
- Function (20 min)
- Analyzing Function (40 min)
- Architecture as Form to Function Mapping (15 min)
- Documentation of Systems (25 min)
- ✷ Graded Activity (15 min)
  Due by the end of the course
- ✷ Project (2 hrs)
  Written submission and self-assessment due at end of the second week
- ✷ Action Plan (30 min)
  Due by the end of the course
- Key Takeaways (2 min)

WEEK 3: SYSTEM ARCHITECTURE (4-6 hrs)

The third week of the course focuses on system architecture. You will take a further step in the study of relationships, specifically between form and function. You will cover three key ideas (1) concept, (2) architecture and concept, and (3) system architecture decisions.

- Key Ideas (3 min)
- Concept (35 min)
- Architecture and Concept (20 min)
- System Architectural Decisions (35 min)
- ✷ Graded Activity (30 min)
  Due by the end of the course
- ✷ Project (2 hrs 30 min)
  Written submission and self-assessment due at end of the third week
  Peer reviews due at end of the third week
- Key Takeaways (2 min)

Live Event This Week
Course Q&A Webinar with Course Faculty
More information in Welcome to the Course > Course Webinars section

WEEK 4: MODELING WITH DSMs and MODULARIZATION (4-6 hrs)

The fourth week of the course will center on the representation of systems using a matrix like-view. Finally, you will cover change management, an important topic when architecting systems.

- Key Ideas (1 min)
- Design Structure Matrix Modeling (50 min)
- Architecting Process Flow (40 min)
- Modularization, Two Down, One Up (30 min)
- Change Management (40 min)
- ✭ Project (1 hr 30 min)
  Written submission and self-assessment due at end of the fourth week
  Peer reviews due at end of the fourth week
- ✭ Action Plan (20 min)
  Due by the end of the course
- Key Takeaways (2 min)

Top 10 Questions
Top 10 Questions discussion thread with Course Instructor
More information in the Discussion Forum

WEEK 5: SYSTEM ARCHITECT (4-6 hrs)

The fifth and final week of this course takes a step back from the architect's point of view. You will view the role of the architect in the development of a system, his or her deliverables, and three main architecture frameworks used in the industry.

- Key Ideas (3 min)
- Role of the Architect (40 min)
- Deliverables of the Architect (15 min)
- Architecture Frameworks (35 min)
- ✭ Graded Activity (15 min)
  Due by the end of the course
- ✭ Project (1 hr 30 min)
  Written submission and self-assessment due at end of the fifth week
  Peer reviews due at end of the fifth week
- ✭ Action Plan (20 min)
  Due by the end of the course
- Key Takeaways (2 min)
- Course Wrap Up (3 min)
- Exit Survey (10 min)
- ✭ Post-Assessment (15 min)
  Due by the end of the course

AFTER THE COURSE ENDS

Course end date
- Course Ends
- Discussion Forums Lock
- Course staff will no longer monitor or update course content

Four days after course ends
- Course certificates available on MIT xPRO dashboards