A Kanban System for Software Engineering

2 Day Class Curriculum

What you will learn

An introduction to Lean, Pull Systems and Kanban

4 areas of focus to deliver success

Value Stream Mapping

Process Flow Tracking

Implementing different classes of service

Implementing a culture of continuous improvement (Kaizen)

How established industrial engineering theory can apply to software development process

Controlling WIP

Identifying bottlenecks

Classifying bottlenecks as capacity constrained resources or non-instant availability resources

Managing bottlenecks appropriately for improved throughput

Understanding transaction and coordination costs in a kanban process

Defining release and input cadence for a kanban system

Negotiating service level agreements with customers

Using Metrics and Reporting to drive continuous improvement

Establishing policies to prevent abuse and gaming of the kanban system

Introduction

Introduction to Lean

What is a kanban system – Imperial Palace Gardens example

Background and history of approach to kanban system for software engineering

Recipe for Success (and outline for remainder of class)

Focus on Quality

Reduce (or Limit) Work-in-Progress

Balance Demand against Throughput

Prioritize

How kanban delivers all 4 elements of the Recipe for success

Case Study – Microsoft XIT Sustaining Engineering

Value Stream Mapping and Tracking

Defining customer-valued work items (deliverables)

Value-stream mapping

Work item tracking (manual and electronic)

Daily standup meetings

Kanban boards

Sticky Buddies

Exercise 1 – Tracking Value Delivery

Group Show and Tell

Qualities of Service

Types of work items

Expediting ("Silver Bullets")

Policies for processing work items

Exercise 2 – Classes of Service and Policies

Kaizen Culture

Meaning of Kaizen

Trust and transparency

Alignment

Focus on Value Delivery

Empowerment, Delegation (Self-organization)

Servant Leadership

Objective Quantitative Management with simple Metrics

Industrial Engineering

Effects of Expediting

Bottlenecks

Empirical observation and adjustment

Spontaneous Quality Circles

Kaizen events

WIP

Setting kanban limits

Bottlenecks

Identifying bottlenecks

Capacity constrained resources

Non-instant availability resources

Improving throughput

Exercise 3 – Kanban Limits and Constraint Management

Group Show and Tell

Examples of variants on kanban systems

Sustaining

Various Project Examples from Corbis

Use outside software development

Yahoo! Examples

Other published examples

Scaling Kanban

Standup meetings

Two-tiered kanbans

Swim Lanes

Release Cadence

Technical transaction costs of release

Customer transaction costs of release

Market variation and demand for releases

Prioritization Cadence

Feeding the input queue

Transaction costs of item selection and prioritization

Service Level Agreements

Striking a different bargain

Determining a service level agreement

Monitoring due date performance

Exercise 4 – Release and Prioritization Cadence Selection

Group Show and Tell

Metrics and Reporting

WIP - Cumulative flow

Lead Time

Waste Lead Time : Touch Time

Open Issues and Blocked Work Items

Lead Time Specturm Analysis

Executive Dashboard

Exercise 5 – Metrics and Reporting

Group Show and Tell

Gaming the System

Collaborative Game Theory

Kanban system robustness to gaming

Bargaining, Democracy and Collaborative Problem Solving

Prioritization policies to prevent gaming

Expediting and how to avoid too many *Silver Bullets*

Building trust through collaboration

Building collaboration by turning the real work in to a collaborative game

Summary

Culture

Policies

Cadence

Collaboration

Continuous Improvement

Exercise 6 – Reflection "Where can you use kanban?"

Is Kanban for you? And where would you introduce it first?