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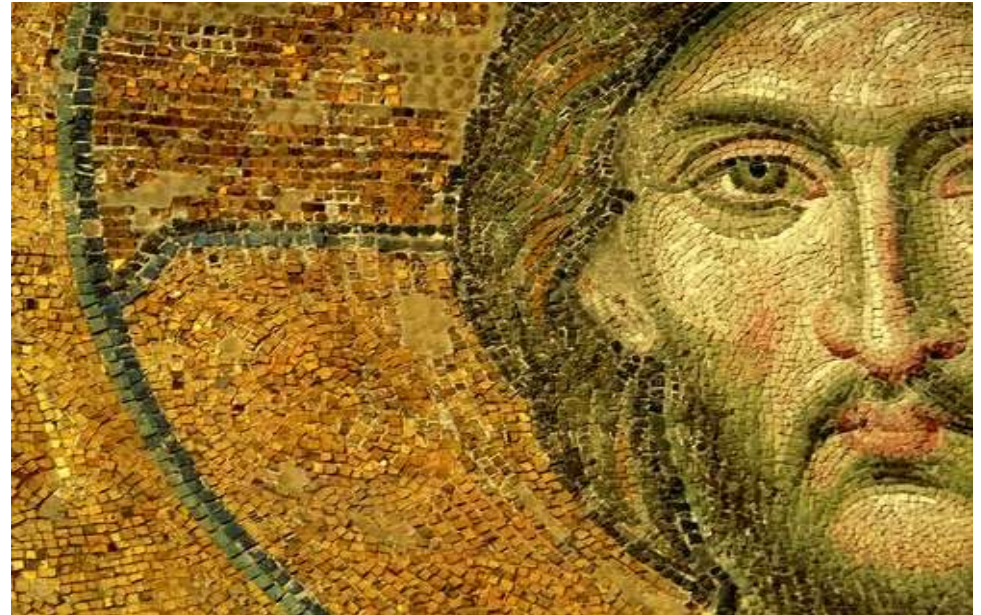
# **FRANCISCAN University –** SOFTWARE ENGINEERING

CSC – 351NA

Professor Wessel

Topic 1 - Introduction

# FRANCISCAN University – SOFTWARE ENGINEERING



*For which of you, desiring to put up a tower, does not first give much thought to the price, if he will have enough to make it complete?*

*Luke 14:28 <sub>2</sub>*

# FRANCISCAN University – SOFTWARE ENGINEERING

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- ✧ Professor Wessel (jwessel@fus.edu)
- ✧ FUS e-mail is the best way to contact me
- ✧ Hours: by appointment - (908) 418-0323
- ✧ Background: M.S. Software Engineering
  - *13 years at EXXON; 9 years at MITRE; 15 years at CMU – SEI*

# FRANCISCAN University – Teaching Approach

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- ✧ No single right way to teach software engineering
- ✧ Approach is to teach from learned experience, not simply textbook solutions
- ✧ Class is a conversation, not a lecture
  - *Please feel free to ask questions and make comments*
  - *We will ask questions*

## KEY DEMONSTRATION OF UNDERSTANDING – A Team Project

- Resemble a real world job situation, employ class tenets
- *Be Creative, Practical and Enjoy the experience*

# FRANCISCAN University – Grading



Activity	Due Date	Points	Percentage
Project Overall [total]		<b>330</b>	<b>66</b>
- Project Plan	D:Feb1 F:Feb15	60	12
- Project Requirements	D:Feb8 F:Feb22	60	12
- Project Architecture	D:Feb22 F:Mar8	60	12
- Project Test Plan	Mar29	60	12
- Project Final Report w/Results	May 3	90	18
Quizzes (3) - average [total]		<b>120</b>	<b>24</b>
	(#1) Feb15	40	8
	(#2) Mar29	40	8
	(#3) May3	40	8
Participation	On-going	<b>50</b>	<b>10</b>
<b>Total</b>		<b>500</b>	<b>100%</b>

Use  
IEEE\*  
Templates



## IEEE Templates

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### Use these formats to submit your assignments

- ✧ Software Project Management Plan

[https://www.ida.liu.se/~TDDD31/project/download/TDDD31\\_Project\\_Template.doc](https://www.ida.liu.se/~TDDD31/project/download/TDDD31_Project_Template.doc)

- ✧ Software Requirements Plan

[https://web.cs.dal.ca/~hawkey/3130/srs\\_template-ieee.doc](https://web.cs.dal.ca/~hawkey/3130/srs_template-ieee.doc)

- ✧ Software Architecture (sample)

[cs.bilkent.edu.tr/~cagatay/cs413/sample\\_group13\\_sdd.doc](http://cs.bilkent.edu.tr/~cagatay/cs413/sample_group13_sdd.doc)

- ✧ Software Test Plan (sample)

[www.ecs.csun.edu/~rlingard/comp480/TestPlanTemplate.pdf](http://www.ecs.csun.edu/~rlingard/comp480/TestPlanTemplate.pdf)

# FRANCISCAN University – Topic Sequence

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- ✧ Topic 1 (Jan25): Introduction
- ✧ Topic 2 (Feb1): Software Development Lifecycle
- ✧ Topic 3 (Feb8): Requirements Management
- ✧ Topic 4 (Feb 15): Architecture – Blueprint of multiple activities
- ✧ Topic 5 (Feb22): Software Design
- ✧ Topic 6 (Mar1): Software Project Management – Are we on the right path
- ✧ Topic 7 (Mar8): Quality – Non-functional attributes
- ✧ Topic 8 (Mar15): Testing – Verification & Validation

# FRANCISCAN University – Topic Sequence

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- ✧ Topic 9 (Mar22): Risk Management
- ✧ Topic 10 (Mar29): Cyber – Every software element/aspect must be considered
- ✧ Topic 11 (Apr5): Process Management – CMMI
- ✧ Topic 12 (Apr12): Soft Skills & Documentation– People, Communications; Safeguard investment
- ✧ Topic 13 (Apr19): Project and Software Measurement & Estimation
- ✧ Topic 14 (Apr26): Software Engineering – An Integrated Summary, how it fits together
- ✧ Last Class (May3): Team Project Presentations



# FRANCISCAN University – Capstone Project

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## Topic Project – Capstone Project

- ✧ Project Teams : 3 – 4 people
  - Developer(s); Database; Tester; Documenter
  - External stakeholder commitments - User
- ✧ Generate a Project Plan – Your own app, employ Agile!
- ✧ Apply Programming & DB Knowledge – Use technology you are confident in, some new technology learning will occur but smartly limit.
- ✧ Develop your application – Apply lecture tenets
- ✧ Final presentation to Topic/Department – Explain choices, demonstrate capability, acquired best practices and lessons learned.

# FRANCISCAN University – Reading

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- ✧ Sommerville, Software Engineering
  - Reading assigned per lecture topic
- ✧ Brooks, Mythical Man Month
  - Regular readings
- ✧ Software Engineering Body of Knowledge
  - Reading assigned per lecture topic
  - Use within projects

# FRANCISCAN University – Class Format

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## ✧ Project status per team (Agile) – 15 mins

- Sprint Reporting: Last week's accomplishments, risks/issues, next week's plan

## ✧ Lecture – 1st half: Topic Discussion

BREAK TIME



10 minutes

## ✧ Lecture – 2<sup>nd</sup> half: continue Topic Discussion

# FRANCISCAN University – Sample Project Plan & Status Template

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- ✧ Project Name and Team
- ✧ Objective and Goals
- ✧ Team Member Roles and Responsibilities
- ✧ Schedule and Hours Planned on task:
  - Requirements
    - Functions and qualities
  - Software & Hardware Resources and Required Setup logistics
    - Feasible?
  - Architecture
  - SW and DB Design
  - Software and DB Development
  - User/Operations Collaboration
  - Test Plan with Metrics with Use Cases
  - Final Report

# FRANCISCAN University – Capstone Project

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## Make a Plan / Schedule -

### Sample ONLY

- ✧ Weeks 1 - 2: Form Teams, Generate a Project & Rough Plan
- ✧ Weeks 2 - 3: Detailed Plan, Requirements & Use Cases
- ✧ Weeks 3 - 4: Develop Architecture & Software Design
- ✧ Weeks 5 -12: Code – Test – Fix (repeat until ready)
- ✧ Weeks13-14: Analysis, Final Report & Presentation



# Weekly Project Update

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## ✧ On schedule?

- What did you accomplish last week / plans for next week

## ✧ Team meet? (hint- this is important for success)

- When, where, who
- What discussed, agree?

## ✧ Report challenges (risks, issues), or opportunities

- Who is assigned to the challenge / describe mitigation plan

## ✧ Questions for me?

## ✧ Feedback

- I will provide feedback from owner perspective

# FRANCISCAN University – Sample Project Final Report Template

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- ✧ Name: App name
- ✧ Objective: Provides A, B, C with these qualities...
- ✧ Introduction: Overview of effort
- ✧ Requirements: What you planned to do
- ✧ Architecture: Blueprint to accomplish plans
- ✧ Use Cases/Stories: How app used
- ✧ Demonstration: What you really accomplished..

# FRANCISCAN University – Sample Project Final Report Template

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- ✧ Performance: how does metrics of performance stack up against your requirements
- ✧ What really happened: The Good, The Bad and The Ugly...
  - What decisions were made, how made
  - How class tenets used
- ✧ Best Practices, Lessons Learned
  - What you walked away with
- ✧ Conclusions
  - Summarize what happened and what you learned to be better