MAHARISHI UNIVERSITY OF MANAGEMENT

CS 544 – Enterprise Architecture
The Field of All Possibilities is the Source of All Solutions

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Maharishi's Twelfth Year of Invincibility

Global Raam Raj

Maharishi University of Management is an Equal Opportunity Institution.

CS544: Enterprise Architecture

Diversity Arising from Unity

Main Objectives of EA

This course focuses on the protocols, principles, design patterns, and architecture of the Corporate Enterprise. The course emphasizes principles and patterns that are general across all platforms and frameworks.

We will examine the architectural layers of an N-Tier architecture and the different technologies associated with these layers. The main emphasis will be what is commonly referred to as Service and Persistence tiers. Data Integrity, Security, Application Integration and Distributed Applications are areas of focus in this course.

To investigate these principles in depth the course will examine and work with the Spring Framework. The Spring Framework provides a comprehensive programming and configuration model for modern Java-based Enterprise Applications.

Also, in an Enterprise–level work environment, professional success is highly correlated with the ability to work in a team environment. In this course, we will develop team skills by organizing into groups of 3 or 4 at the start of the course. Teams will work as a unit, discussing course material, collaborating on labs and developing the course project.

CS-544: Enterprise Architecture

	Mon	Tues	Weds	Thurs	Fri	Sat
Week 1 AM	**Lesson 1** Introduction to Enterprise Architecture & Spring Core	**Lesson 2** Introduction to ORM - Basic Mapping	**Lesson 3** Persistence API	**Lesson 4** ORM Associations	**Lesson 5** ORM Inheritance	**Lesson 6** ORM Queries
PM	**Lab**	**Lab**	**Lab**	**Lab**	**Lab**	
Week 2 AM	**Lesson 7** Optimization	**Lesson 8** Web Apps & Concurrency	**Lesson 9** Transaction	**Review**	**EXAM**	**Lesson 10** Aspect Oriented Programming
PM	**Lab**	**Lab**	**Lab**			**Lab**
Week 3 AM	**Lesson 11** Spring MVC & Spring Data	**Lesson 12** Security & Validation	**Lesson 13** Spring Boot & REST	**Lesson 14** Messaging & Integration	**Review**	**EXAM**
PM	**Lab**	**Lab**	**Lab**	**Lab**		
Week 4 AM	Work on Final Project	Work on Final Project	Work on Final Project	Final Project Demos		
PM						

Course Objectives

The following outlines the knowledge that you will gain, how you will attain it and how you will be evaluated.

What you will Learn	How you will learn	How you will be Assessed
Design OO-RDBMS applications based on Hibernate ORM (3,4,5)	• Lecture • Demo • Assigned Reading • Assigned Lab Team collaboration Individual submission • Student-led review	• Quiz[daily]: self-Assessment • Exam #1
Safely guard Enterprise Data through Security & Validation Technologies (3,4,5)	• Lecture • Demo • Assigned Reading • Assigned Lab Team collaboration Individual submission • Student-led review	• Quiz[daily]: self-Assessment • Exam #2
Integrate Distributed Technologies through Enterprise Integration (3,4,5)	• Lecture • Demo • Assigned Reading • Assigned Lab Team collaboration Individual submission • Student-led review	• Quiz[daily]: self-Assessment • Exam #2
Design distributed Functional N-tier architecture using RESTful Services (3,4,5)	• Lecture • Demo • Assigned Reading • Assigned Lab Team collaboration Individual submission • Student-led review	• Quiz[daily]: self-Assessment • Exam #2 •
Synthesize & Integrate the entire course content (3,4,5,6)	• Develop a Proof of concept application through a team-based project	• Presentation • Project Assessment
Connect Science of Consciousness and Technologies learned. (2,4)	• Individual Students reading aloud Main Points for daily lesson • Daily lecture augmented with fuller examples of technology & Consciousness relationships	• Essay questions on Exams • Writing an “original” main point in the daily status report

*The numbers in parentheses refer to the MUM Essential Learning Outcomes that are best supported by this course objective; they appear in **boldface** in the list below.

1. Holistic development of consciousness and health
2. **Consciousness-Based understanding (Knowledge)**
3. **Creative and critical thinking**

4. **Communication**
5. **Scientific and quantitative reasoning**
6. Collaboration and leadership
7. Sustainable local and global citizenship

Class Schedule

Class is in session from 10 AM to 12:30 every weekday morning, with the final 15 minutes devoted to a group meditation, and from 1:30 to 3:25 every afternoon, with the final 20 minutes for group meditation. On Saturday, we meet only in the morning and follow the usual weekday format during the morning.

Textbooks

There is no specific ***required*** textbooks. The course material has drawn on numerous resources. Not in the least, the Spring Framework reference documentation as well as the Hibernate Reference Documentation. There is a ***suggested*** book with respect to Hibernate.
Suggested Textbooks

Just Hibernate: A Lightweight Introduction to the Hibernate Framework
by Madhusudhan Konda
ISBN: 978-1-449-33437-6
O'Reilly Media; 1st edition (June 27, 2014)

Other Books:

Pro Spring, Spring Recipes & Pro Spring Security

Homework

I will assign Labs every day. In class I will give details concerning how status reports and lab assignments should be submitted. Even if you collaborate with others, make sure you understand and submit your own lab solution – because on the exams, the same concepts will reappear.

Final Lab Project

During the final week of the course, you will work on a group project. The project will be presented on the last day of class.

Exams

There will be two exams in the class. The following table provides additional details:

Exam Number	Date Administered	Exam Content	Value
1	2nd Friday	Lessons 1 – 9	45 %
2	3rd Saturday	Lessons 10 - 15	40 %

Grading

Your final grade will be a combination of your scores on Exams, Final Project, and Professional Etiquette, Labs and SCI. Combined Exam scores count 85%; Final Project scores for 10% ; Quizzes & Labs counts 4%, SCI and your Professional Etiquette scores counts 1%. Professional Etiquette is an evaluation of your attendance,participation and professional appearance in class.

Evaluation Modality	Value
Exams	85%
Project	10%
Quizzes & Labs	4%
Professional Etiquette,SCI, Labs	1%

There will be extra credit awarded for participation in group meditation in Dalby Hall.

We will use the following grading scale:

Range	Letter Grade
98-100	A+
93-97	A
90 - 92	A-
87 - 89	B+
83 - 86	B
80 - 82	B-
77 - 79	C+
73 - 76	C
70 - 72	C-
0 - 69	NC