CPCS-405 Syllabus

Catalog Description

CPCS-405 Software Technology Topics
Credit: 3 (Theory: 3, Lab: 0, Practical: 0)
Prerequisite: CPCS-351
Classification: Elective

The objective of this course is to explore recent topics related to Software Technology. Topics include Object-Oriented Programming fundamental concepts, advanced swing graphical user interface, advanced exception Handling Techniques, Streams and Files, multithreading programming, and networking programming. Moreover, the course also focuses on database programming (JDBC), servlets and java server pages (JSP), and Java Security.

Class Schedule

Lab/Tutorial 90 minutes 1 times/week

Meet 50 minutes 3 times/week or 80 minutes 2 times/week

Textbook

Markus V??lter, Thomas Stahl, Jorn Bettin, Arno Haase, Simon Helsen, , "Model-Driven Software Development", Wiley;(2006-07-14)

ISBN-13 9780470025703 **ISBN-10** 0470025700

Grade Distribution

Week	Assessment	Grade %
2	Graded Lab Work 1	
4	Graded Lab Work 2	
6	Graded Lab Work 3	
7	Exam 1	15
8	Graded Lab Work 4	
9	Project (Individual)	10
10	Graded Lab Work 5	
12	Exam 2	15
12	Graded Lab Work 6	
14	Graded Lab Work 7	
15	Lab Exam	20
15	Group Project	15
16	Comprehensive Final Exam	25

Last Articulated

September 28, 2017

Relationship to Student Outcomes

a	b	c	d	e	f	g	h	i	j	k
	x	x								x

Course Learning Outcomes (CLO)

By completion of the course the students should be able to

1. Apply Inner Classes concept using java programming language. (b)
2. Demonstrate how Generics creates type safe code. (b)
3. **Illustrate applications that use the Generics and Collections framework. (b)**
4. Apply advance error-handling techniques using exception handling. (c)
5. Illustrate packages containing GUI components, event-handling classes and interfaces. (c)
6. **Implement input/output (I/O) functionality to read from and write to data and text files and understand advanced features of I/O streams such as object serialization and de-serialization. (b)**
7. **Create data-centric applications and understand the use of JDBC APPI for parameterized queries, batch processing and transaction management and apply multiple operations on database tables including creating, reading, updating, and deleting records. (c)**
8. Discuss Where and how to use lambdas expressions. (b)
9. Explain how regular expressions are used in Java and write code using regular expressions. (b)
10. **Construct high-performing multi-threaded applications that avoid deadlock. (c)**
11. Describe basic design modelling techniques, including UML class diagrams and simple design patterns (e.g., Singleton, Factory Method, MVC (model, view, controller)), and indicate how and when to use them. (c)
12. Apply Graphics, Animations and Multithreading for designing Simulation and Game based applications. (k)
13. **Write network based applications using java.net package and design applications based on client server model. (b)**
14. Explain Internationalization with resource bundles and construct Localize Java applications. (k)

Coordinator(s)

Dr. Asif Irshad Khan, Assistant Professor

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Topics Coverage Durations

Topics	Weeks
Review: OOP fundamental concepts	1
Java Inner Classes	2
Java Generics	1
Java Generics, Java Collection API	1
Java Collection API	1
Advanced Exceptions and Assertions	1
Advanced Exceptions and Assertions , Java GUI Swing	1
Java GUI Swing	1
Advanced Java input/output	1
Advanced Java input/output , Java JDBC	1
Java JDBC	1
Java Threading	1
Java Network Programming	1
Java Localization	1