

Dept Number	CS 412	Course Title	Programming Distributed Applications							
Semester Hours	3	Course Coordinator SP15	Nick Rahimi							
Catalog Description	This course uses advanced features of the Java programming language to develop networked, distributed, and web-based applications. Topics covered include, but are not limited to, sockets, datagrams, the Java security model, threads, multi-tier architectures, Java RMI, Java database connectivity, and Java-based mobile agents.									
Textbooks										
SP15										
<i>Java: How to Program</i> , Paul Deitel and Harvey Deitel, Pearson/Prentice Hall, 9 th Edition, 2011, ISBN: 9780132575669.										
References										
<i>Distributed System: Concepts and Design</i> . Colouris, George. Addison Wesley, 5th Edition, 2011. ISBN: 978-0132143011.										
Course Learning Outcomes										
<ul style="list-style-type: none"> To learn to develop network and distributed applications and network components. To learn advanced topics in Java. 										
Assessment of the Contribution to Student Outcomes										
Outcome →	1	2	3	4	5	6	7	8	9	10
Assessed →		X	X	X	X	X				
Prerequisites by Topic										
CS 306 with a grade of C or better.										

Major Topics Covered in the Course

1. Introduction to networking concepts: computer networks and the internet , overview of OSI reference model, overview of TCP and UDP, hosts, ports, sockets and datagram's, client/server architecture {3 classes}
2. Java review: review of object-oriented programming concepts, objects, classes and interfaces in Java, applications vs. applets, programming with Java class libraries {5 classes}
3. Stream based I/O in Java: overview of I/O streams, Java's stream classes, object serialization exception handling {5 classes}
4. Network programming in Java: the java.net package, sockets, data grams, URLs , introduction to Java security model, introduction to threads and concurrent servers {5 classes}
5. Introduction to distributed computing: distributed systems, multi-tier architectures, basic RPC mechanisms, distributed objects {5 classes}
6. Distributed computing with Java RMI :remote interfaces, objects and methods, passing object arguments via serialization ,generating stubs and skeletons, registering remote objects ,locating and using remote objects {5 classes}
7. Java database connectivity: structured query language ,transaction processing {4 classes}
8. Java-based mobile agents: software agent technology ,agent platforms {5 classes}
9. Server side programming: servlets and java server pages {3 classes}