UVa

Plan 244   Ing. de Telecomunicación

Asignatura 43823   COMPLEMENTOS DE TELEMATICA I

Grupo   1

Presentación

CTMI - Esta asignatura se impartirá en inglés
English will be the official language of the course

Programa Básico

Asignatura: Complementos de Telemática I
Titulación: Ingeniero de Telecomunicación

Descripción:

Se tratan los sistemas de procesamiento distribuido y middleware más relevantes. El alumno adquiere conocimientos sobre cómo se realiza la comunicación en este tipo de sistemas: procedimientos remotos, plataformas orientadas a objetos, a componentes y a servicios. De esta forma, el alumno tiene una visión global de las tecnologías de integración de aplicaciones heterogéneas y su aplicación.

Breve descripción del contenido:

Complementos de arquitectura de redes, sistemas y servicios.

Programa básico de la asignatura

· Concepto, motivación, requisitos y tipos de Sistemas Distribuidos
· Concepto y tipos de Middleware
· Middleware Orientado a Objetos
    o Concepto y motivación
    o Java/RMI
    o CORBA
    o COM/DCOM
· Middleware Orientado a Componentes
    o Concepto y Motivación
    o EJB/J2EE
    o CCM/CORBA 3.0
    o VOS/.NET
· Middleware Orientado a Servicios
    o Concepto y Motivación
    o Servicios Web (WS)

Objetivos

Introduction to currently most relevant distributed processing systems and middleware. It first begins with communication basic concepts using remote procedural calls (RPC, Java-RMI). Next, more complex solutions are presented: object-oriented distributed processing platforms (CORBA, DCOM) and component-oriented distributed processing platforms (J2EE/EJB, .NET/DCOM). Finally, Web Services will be studied.
The final objective is to offer the student a global vision of the technologies employed for the integration of heterogeneous applications and their usage.

PART 1: INTRODUCTION
TOPIC 1:INTRODUCTION TO DISTRIBUTED SYSTEMS
Concept
Motivaction, advantages and disadvantages
Requirements
Types:
Distributed Operating Systems
Distributed Applications
Data transport APIs
Middleware
Middleware:
Concept
Types

PART 2: OBJECT-ORIENTED MIDDLEWARE
TOPIC 2: OBJECT-ORIENTED MIDDLEWARE
Introduction
Foundation
Motivation

TOPIC 3: JAVA/RMI
Architecture
Available services
RMI-IIOP
Application development: example of use

TOPIC 4: CORBA
Architecture
IDL. Mapping of IDL to Java
Method invocation (static and dynamic)
Available services: naming service
Application development: example of use

TOPIC 5: COM/DCOM
Architecture
Method invocation (static and dynamic)
Available services
Application development: example of use

PART 3: COMPONENT-ORIENTED MIDDLEWARE
TOPIC 6: COMPONENT-ORIENTED MIDDLEWARE
Introduction
Foundation
Motivation

TOPIC 7: EJB/J2EE
Architecture
Component types
EJBs
Application development: example of use

TOPIC 8: CCM/CORBA 3.0
Architecture
Services

TOPIC 9: VOS/.NET
Architecture
Services

PART 4: SERVICE-ORIENTED MIDDLEWARE
TOPIC 10: SERVICE-ORIENTED MIDDLEWARE
Introduction
Foundation
Motivation

Programa Práctico

LAB WORK 1: Java/RMI, RMI-IIOP, CORBA
Study of an example (HelloWorld) with Java/RMI, RMI-IIOP and CORBA. Development of a distributed programme employing these technologies and analysing their differences.
LAB WORK 2: EJB/J2EE and Web Services
Study of an example (HelloWorld) with EJB/J2EE and Web Services. Development of the program posed in LAB WORK 1 using these technologies.

Evaluación

The evaluation will be done applying the following weights:
Theory (33%): written exam
Lab work 1 (33%): revision and written report
Lab work 2 (33%): revision and written report

Bibliografía

SISTEMAS DISTRIBUIDOS:
G. Coulouris, J. Dollimore, T. Kindberg, "Distributed Systems: Concepts and Design"
Adisson-Wesley, 2000

A. S. Tannembaum, "Sistemas Operativos Distribuidos"
Prentice Hall, 2ª Ed.

Doreen L. Galli, "Distributed Operating Systems. Concepts & Practice"
Prentice Hall 2000

MIDDLEWARE ORIENTADO A OBJETO:
J.Pritchard, "COM and CORBA Side by Side", Addison-Wesley, 1999

Henning, M., Vinoski, S. "Programación Avanzada en CORBA con C++"
Addison-Wesley Professional Computing Series, 2001

Orfali, R. Harkey, D. "Client/server Programming with Java and CORBA" 2nd Ed John Wiley & Sons, 1998

S. Vinoski. "CORBA:Integrating Diverse Applications Within Distributed Heterogeneous Environments"
IEEE Communications Magazine, Febrero 1997

W. Emmerich "Engineering Distributed Objects"
John Wiley & Sons

Z.Tari, O. Burkes "Fundamentals of Distributed Object Systems: the CORBA perspective"
John Wiley & Sons