MIZAN TEPI UNIVERSITY
INFORMATION TECHNOLOGY PROGRAM

Program	Information Technology				
Course Code	ITec4148		**Pre-requisites**	Fundamentals of Programming I (CoSc1012), Event-Driven Programming (ITec3054)	
Course Title:	Integrative Programming and Technologies		**Year /Semester**	IV Year, II Semester	
Degree Program	Information Technology				
Module Name	Integrative Programming and Technologies		**Status of the Course**	Core	
Module No.	ITec-M4131				
ECTS Credits (CP)	05		**Target Group**	IV Year II Semester IT Students	
Contact Hours (per week)	**Lecture**	**Tutorial**	**Lab/Practical**	**Home Study**	**Total**
	32	48	0	55	135
Course Description	This course looks at systems integration with focus on communication mechanisms and data standardization. Students learn how to choose their communication approach by considering platform, data structure similarity/dissimilarity as well as client requirements. They will learn how to represent structure and how to transport data using XML and XML related technologies and protocols. Standardization of XML documents for the purpose of data exchange is stressed.				

Course Objective	At the end of this course students will be able to ◆ Describe and contrast the different types of architectures for integrating systems. ◆ Define the role of DCOM, CORBA, and RMI in distributed processing. ◆ Describe how web services are used to integrate disparate applications in an organization. ◆ Create valid WSDL, SOAP and UDDI XML documents to define a web service. Write, debug, and test a web service. Deploy the web service to middleware and invoke the web service from an application across the network. ◆ Design, develop and test a socket program that communicates between two different services using both TCP/IP sockets and Datagram sockets. ◆ Describe the role of the WSDL, SOAP, and UDDI architectures in creating and using web services. ◆ Describe the role of socket programming in communicating between systems.
Course Content	**Chapter One: Intersystem Communications** o Architectures for integrating systems ▪ Service Oriented Architecture(SOA) o Define the role of DCOM, CORBA, and RMI in distributed processing. **Chapter Two: Web Services & Middleware** o Web Services ▪ SOAP ▪ WSDL ▪ UDDI o REST web service ▪ JSON o Middleware o Socket program ▪ Communicate services • TCP/IP socket • Datagram Sockets **Chapter Three: Data Mapping and Exchange** o Metadata o Data representation and encoding o XML ▪ DTD ▪ XML schemas ▪ Xpath ▪ XSL and XSLT ▪ Mapping relational data to xml o Parsing XML documents ▪ SAX ▪ DOM **Chapter Four: Integrative Coding** o Design Patterns ▪ Creational Design pattern ▪ Structural Design Pattern

	▪ Behavioral Design Patten ▪ MVC design Pattern o Interfaces o Inheritance **Chapter Five: Miscellaneous Issues** o Adopt and Adapt o Versioning and version control
References	Sathish Kumar Konga. Basic Integration Programming Technology: Data Integration Technology/ Architecture
Assessment Methods	Depend on University legislation