Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	**College of Erbil Technical Engineering**	
Department	**Department of Information System Engineering**	
Module Name	**Information System Architecture**	
Module Code	**ISA705**	
Degree	**Technical Diploma** ☐ **Bachler** ■ **High Diploma** ☐ **Master** ☐ **PhD** ☐	
Semester	**Seven**	
Qualification		
Scientific Title		
ECTS (Credits)	**6**	
Module type	**Prerequisite** ☐ **Core** ■ **Assist.** ☐	
Weekly hours	**4**	**Total Workload=(162) hrs**
Weekly hours (Theory)	**(2)hr Class**	**(53)Total hrs Workload**
Weekly hours (Practical)	**(2)hr Class**	**(109)Total hrs Workload**
Number of Weeks	**20**	
Lecturer (Theory)	**Mohammed Qasim Kamal**	
E-Mail & Mobile NO.	**mohammed.qasim@epu.edu.iq** **07504883909**	
Lecturer (Practical)	**Kurdistan wuns**	
E-Mail & Mobile NO.	**07507464633**	
Websites		

Course Book

<table>
<tr><td>Course Description</td><td colspan="5">Computer systems are undergoing a revolution, computers were large and expensive. Even minicomputers cost at least tens of thousands of dollars each. As a result, most organizations had only a handful of computers, and for lack of a way to connect them, two advances in technology began to change that situation. The first was the development of powerful microprocessors.

The second development was the invention of high-speed computer networks. Local-area networks or LANs allow hundreds of machines within a building to be connected in such a way that small amounts of information can be transferred between machines in a few microseconds or so</td></tr>
<tr><td>Course objectives</td><td colspan="5">This course will tech student about the architecture of distributed system, client/server, socket programming, and what are the issues in developing a distributed system what are the naming, open, scale, transparency, replication, migration and failure in such a system</td></tr>
<tr><td>Student's obligation</td><td colspan="5">Student's obligation in the computer application course is:
• Attendance in the all lectures.
• Quizzes or homework in each course.
• Exam in end of first course and second course.</td></tr>
<tr><td>Required Learning Materials</td><td colspan="5"></td></tr>
<tr><td rowspan="9">Evaluation</td><td colspan="2">Task</td><td>Weight (Marks)</td><td>Due Week</td><td>Relevant Learning Outcome</td></tr>
<tr><td colspan="2">Paper Review</td><td></td><td></td><td></td></tr>
<tr><td rowspan="6">Assignments</td><td>Homework</td><td>5</td><td>2</td><td>Learn raid and zfs and how it used in distributed system</td></tr>
<tr><td>Class Activity</td><td>2</td><td>1</td><td></td></tr>
<tr><td>Report</td><td>10</td><td>1</td><td>Learn RPC procedure</td></tr>
<tr><td>Seminar</td><td></td><td></td><td></td></tr>
<tr><td>Essay</td><td></td><td></td><td></td></tr>
<tr><td>Project</td><td>10</td><td>1</td><td></td></tr>
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	Lab Report & Activity	10	2	
	Quiz	8	1	
	Lab Quiz	8	1	
	Midterm Exam	10	1	
	Lab Midterm Exam	15	1	
	Final Exam	20	1	
	Lab Final Exam	20	1	
	Total	100		

Specific learning outcome:	The course will give the fundamental knowledge and practical abilities in the following: • Distribution transparency • Openness • Scale • Middleware • Application Layering • Threads • Sockets • Naming • Monotonic
Course References:	• **Theory:** Distributed Systems 3rd edition (2017) [book] • **Laboratory practice:** https://www.nobleprog.com/cc/wssoapwsdl?type=onsite&participants=1&how=private https://www.udemy.com/course/rest-api-development-with-php-mysql-beginners-guide/

Course topics (Theory)	Week	Learning Outcome
Introduction	1&2	Introduce distributed system and how it works
Communication	3&4	How in distributed system communicate with each other's
Process	5&6	How processor transfer data and commands through network
Network	7&8	learn layers and how you can use it solve

		problem in distributed system
Socket	9	How to program network
Naming	10	Intro in to naming
Consistency and replication	11	learn replication and how servers use it
Fault tolerance	12	learn errors in distributed system
Practical Topics	**Week**	**Learning Outcome**
Introduction to JSON Introduction to XML	1&2	Intro in to JSON and XML
WebAPI with php and MySQL (HTTP) WebAPI with php and MySQL (POST) WebAPI with php and MySQL (GET) WebAPI with php and MySQL (DELETE) WebAPI with php and MySQL (UPDATE)	3&4	How to send http request and get data from api
Web Service using Java and Glass Fish	5&6	learn glassfish
Simple Object Access Protocol (SOAP) Why XML with Web Services?	7&8	Learn SOAP
SOAP Messaging Model SOAP over HTTP SOAP Envelope SOAP Header SOAP Message Body SOAP Faults	9	Learn how SOAP model, http and other parts to send request
Web Service Description Language (WSDL) WSDL Information Model	10	Learn WSDL and modelling
The Abstract Model -- Service Semantics Message Description Messaging Styles	11	Learn messaging
The Concrete Model -- Ports, Services, Locations Extending WSDL – Bindings Extending WSDL -- Bindings	12	Learn Bindings

Questions Example Design

1. ***Compositional:***

Q / Write a list of examples sharing resources

Solution:

- Cloud-based shared storage and files
- Peer-to-peer assisted multimedia streaming
- Shared mail services (Mail systems)

- Shared Web hosting (Distribution networks)

2. state these statements are true or false:
Q / Systems should conform to well-defined interfaces
Solution: True

Extra notes:

External Evaluator

I confirm that the syllabus given the attached course book is sufficient and covers the required areas needed for the students.

Signature
Media Ali Ibrahim
17/09/2023