



National Computing Education Accreditation Council NCEAC



NCEAC.DOC.001-E

COURSE DESCRIPTION

NAME OF INSTITUTION	Lahore Garrison University
PROGRAM (S) TO BE EVALUATED	Computer Science , Spring 2022

Course Description : The main objective of this course is to provide a detailed view to Cloud computing and related topics. The students will learn about the technical as well as the management side of cloud computing in current technologies. They will acquire knowledge about fundamental principles of cloud security. Moreover, students should be able to work on cloud service models, services type, cloud security and big data and able to define legal aspects in Cloud computing.

Course Code	CSC7312																	
Course Title	Advance Cloud Computing																	
Credit Hours	3																	
Prerequisites by Course(s) and Topics																		
Assessment Instruments with Weights (homework, quizzes, midterms, final, programming assignments, lab work, etc.)	SESSIONAL (Quizzes, Assignments, Presentations) =25 % Midterm Exam =25 % Final Exam = 50%																	
Course Coordinator	Dr. Tahir Alyas																	
URL (if any)																		
Current Catalog Description	This course requires knowledge of computer networking and distributed computing, and familiarity with web services, service-oriented architecture, Web 2.0, and virtualization as well as research methodology. An interest in research and good technical writing and presentation skills would also be assets for anyone taking this course. Students who are concerned about not meeting the prerequisite for this course are encouraged to contact the course coordinator before registering.																	
Textbook (or Laboratory Manual for Laboratory Courses)	“Cloud Computing: Concepts, Technology & Architecture” Book by Ricardo Puttini, Thomas Erl, and Zaigham Mahmood; Prentice Hall/Pearson PTR																	
Reference Material	“Cloud Computing” Book by Kris Jamsa; Jones & Bartlett Publishers																	
Course Goals	This course provides a graduate-level comprehensive introduction to cloud computing with an emphasis on advanced topics. It is designed in a workshop format with three workshops focusing on key topics. Each workshop includes a call for papers corresponding to the main theme of the workshop, a keynote presentation to provide a conceptual background on the topic, and your paper submission and online presentation. You will develop a final paper on cloud computing to submit to a related international conference as one of the outcomes of this course. The first workshop focuses on cloud computing concepts, technological foundations, infrastructure, and architecture. The second workshop targets security and technology challenges. The third workshop concentrates on applications, implementation issues, and management and governance. The goal of the final paper is to present a new idea or innovation using cloud computing.																	
Course Learning Outcomes (CLOs):	<table><tr><td>At the end of the course the students will be able to:</td><td>Domain</td><td>BT Level*</td></tr><tr><td>articulate the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing</td><td>BT</td><td>1</td></tr><tr><td>explain the core issues of cloud computing such as security, privacy, and interoperability.</td><td>BT</td><td>1</td></tr><tr><td>identify problems, and explain, analyze, and evaluate various cloud computing solutions.</td><td>BT</td><td>2</td></tr><tr><td colspan="2">* BT= Bloom’s Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain</td><td></td></tr></table>			At the end of the course the students will be able to:	Domain	BT Level*	articulate the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing	BT	1	explain the core issues of cloud computing such as security, privacy, and interoperability.	BT	1	identify problems, and explain, analyze, and evaluate various cloud computing solutions.	BT	2	* BT= Bloom’s Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain		
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Topics Covered in the Course, with Number of Lectures on Each Topic (assume 15-week instruction and one-hour lectures)	Week	Lecture	Topics Covered
	Week 1	1	Introduction to Course
		2	Cloud Computing, Introduction
	Week 2	3	Cloud Computing properties
		4	Role of cloud computing
	Week 3	5	Comparison of Services AWS & Azure CSP
		6	Deployment Modes, Cloud Ecosystem
	Week 4	7	Virtualization Types
		8	Enabling Techniques
	Week 5	9	PaaS properties and characteristics
		10	Network Virtualization, Service Level Agreement
	Week 6	11	PaaS Techniques
		12	Cloud Security
	Week 7	13	SLA
		14	SaaS Properties
	Week 8	1 hours	Mid Term
	Week 9	15	PaaS properties and characteristics
		16	Network Virtualization, Service Level Agreement
	Week 10	17	Fundamental Cloud Architectures
		18	Advanced Cloud Architectures
	Week 11	19	Dynamic Data Normalization Architecture
		20	Load Balanced Virtual Switches Architecture:
	Week 12	21	Cloud Brokerage
		22	Cost Metrics and Pricing Models
	Week 13	23	Service Resiliency Metrics
		24	Service Quality Metrics
	Week 14	25	Computer Security Overview
		26	Confidentiality Integrity and Availability
	Week 15	27	Cloud Security Mechanisms: Encryption
		28	High Performance Computing Cloud Applications ; Use Cases , Experiences with HPC Clouds
	Week 16	29	Mobile-Aware Cloud Data Management and Data Retrieval
		30	Backup Vulnerabilities
	Week 17	2 hours	Final Term
Laboratory Projects/Experiments Done in the Course			
Programming Assignments Done in the Course			

Instructor Name	Dr. Tahir Alyas
Instructor Signature	
Date	