CS661 – Research Trends in Software Engineering

Instructor's Name:	Shafay Shamail, Malik Jahan Khan	Year:	2007-2008
Class Hours:	1550 – 1705 hrs (TR)	Quarter:	Spring
Office Hours:	TBA	Category:	MS / PhD
Office No:	Room 401 & NC Lab, CS Department	Extension:	4401, 4438
Website:	http://suraj.lums.edu.pk/~cs661s07		

Course Code	Research Trends in Software Engineering – CS661
Course Description	This course is aimed to explore potential research areas in the field of software engineering. The course will include survey of current research, identification of research problems, conducting research on any of the identified problems and finally publishing at least a position paper in a well-reputed workshop / conference. It will provide students a reasonable breadth of various hot research topics in software engineering and depth in one of their selected areas.
Core / Elective	Elective
Pre-requisites	CS462 - Software Engineering or equivalent
Goals	1. Introduce the students to research in computer science in general and software engineering in particular. 2. Introduce the students to current hot research areas of software engineering. 3. Enable the students to gain a reasonable breadth knowledge of various software engineering research topics and depth knowledge on at least one of the areas. 4. Enable students to identify a potential research problem and work towards its solution. 5. Every student is expected to submit at least one research paper as an outcome of this course in a well-reputed conference / workshop.
Text Books	1. No textbook is required 2. A complete reading list of various research papers will be provided on course website
Lectures, Attendance Policy	There will be 20 sessions of 75 minutes each, attendance and class participation is required
Grading	10% Research Proposal 50% Term Paper 10% Class Participation 30% Final Exam

Modules	*Topics*	*Sessions*
1	**Module 1: Introduction** • Introduction to course and course policies • Search and research methods • How to read a research paper • Latex for writing reports and research papers	2 session
2	**Module 2: Introduction to Potential Research Areas in SE** • Software Process Improvement • Software Quality Prediction • Service Oriented Architectures • Autonomic Computing • Soft Computing and its Applications in SE	2 sessions
3	**Module 3: Software Process Improvement** • Software Processes • Business Process Reengineering	2 sessions
4	**Module 4: Software Quality Prediction** • Software Quality • Essence of Software Quality Prediction • Techniques to Predict Software Quality	3 sessions
5	**Module 5: Service Oriented Architectures** • Survey and Essence of SOA • Aspect Oriented Programming	2 sessions
6	**Module 6: Autonomic Computing** • Autonomic Computing • IBM's Vision of Autonomic Computing • Self-* Properties of Autonomic Systems • Various Applications of Autonomic Computing • Various Techniques to Enable Autonomic Capabilities	4 sessions
7	**Module 7: Soft Computing and its Applications in SE** • Soft Computing • Case-Based Reasoning • Uncertainty and Fuzziness • Applications	3 sessions
8	**Module 8: Presentations** • Term Paper Presentations	2 sessions
9	**Final Exam**	