King Fahd University of Petroleum and Minerals
Department of Mathematical Science
Math 552 - SYLLABUS
Semester I, 2009-20010 (**091**)

Instructor: Dr. Uwe Schauz
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Office Hours: SMW from 3.50 pm to 4.20 pm, and W from 12.30 pm to 13.30 pm

Title: **Field and Galois Theory**
Prerequisites: MATH 345. (MATH 450 is recommended)
Objectives: Field extensions, the fundamental theorem. Splitting fields and algebraic closure, finite fields, separability, cyclic, cyclotomic, and radical extensions. Structure of fields: transcendence bases.
Class Meetings: SaMo from 12.45 pm to 2.00 pm in Building 6, Room 100.
Textbook: Patrick Morandi: *Field and Galois Theory, (1996).* Also recommended: David Dummit and Richard Foote: *Abstract Algebra, 3rd edition (2004)*

Week	Date	Lecture	Section
1	Feb 12, 14	Repetition on Rings	Appendix A
		Field Extensions	1
2	Feb 19, 21	Field Extensions	1
		Automorphisms	2
3	Feb 26, 28	Automorphisms	2
4	Mar 05, 07	Normal Extensions	3
5	Mar 12, 14	Normal Extensions	3
		Separable and Inseparable Extensions	4
6	Mar 19, 21	Separable and Inseparable Extensions	4
7	Mar 26, 28	The Fundamental Theorem of Galois Theory	5
8	Apr 02, 04	The Fundamental Theorem of Galois Theory	5
Midterm Vacation: Apr 09-13, 2011			
9	Apr 16, 18	Finite Fields	6
10	Apr 23, 25	Cyclotomic Extensions	7
11	Apr 30, May 2	Norms and Traces	8
12	May 07, 09	Cyclic Extensions	9
13	May 14, 16	Kummer Extensions (partially)	11
14	May 21, 23	Ruler and Compass Constructions	15
15	May 28, 30	Solvability by Radicals	16
Final Exam: 2 June, Material: Comprehensive (35%)			