Advanced Concepts in Soil Physics

2 units/hrs per week (Theory)
Instructor: Dr. M.R. Mosaddeghi

Objectives of the course:

This is a lecture and/or discussion-based course focused on the new and advanced concepts in soil physics to govern soil physical processes with emphasis on the applications.

Course contents:

1) New concepts on soil water availability for plants (e.g. LLWR, IWC, IE)
2) Physical fractionation of soil organic matter and applications
3) Pathogen transport in porous media
4) Theory and applications of tomography in soil science
5) Soil friability: theory, measurement and applications
6) Soil physical quality (SPQ) theory and applications
7) New and quantitative approaches on soil workability limits
8) Soil water repellency: occurrence, consequences and amelioration
9) Property-transfer (physical) models for soil hydraulic properties
10) Fractals and scaling in soil physics

Sources and Journals:
New Books on Soil Physics and Interdisciplinary Subjects
1) Soil Science
2) Geoderma
3) Australian Journal of Soil Research
4) Canadian Journal of Soil Science
5) European Journal of Soil Science
6) Soil Science
7) Soil Science Society of America Journal
8) Soil Use and Management
9) Soil and Tillage Research
10) Water, Air & Soil Pollution
11) Advances in Agronomy
12) Journal of Environmental Quality
13) Soil Science Society of America Journal
14) Vadose Zone Journal
15) Journal of Environmental Quality
16) Advances in Water Resources
17) Agricultural Water Management
18) Journal of Contaminant Hydrology
19) Journal of Hydrology
20) Transport in Porous Media
21) Water Resources Research

Projects and Seminars:
The student should seek through the sources and journals to find detailed information on selected topics outlined in “Course contents” and to prepare a lecture/presentation on it.