Petroleum Engineering’s Fall 2015 Schedule of Classes

PTE 411: Introduction to Transport Processes in Porous Media (3 units) W 3:30 to 6:10pm
Properties of porous rocks; capillary effect, single phase and multiphase flow through porous media; diffusion and dispersion, miscible displacement, heat transfer. Not available for credit to Petroleum Engineering majors.

PTE 461: Formation Evaluation (3 units) T 11am to 1:40pm
Concepts of petroleum geology, interpretation of downhole surveys and measurements including well logs, MWD, mud logs and samples. Not available for credit to Petroleum Engineering majors.

PTE 500: Computational Reservoir Modeling (3 units) M 3:30 to 6:10pm
Introduction to mathematical and computational methods in characterizing, modeling, and describing the subsurface flow and transport phenomena. Recommended preparation: Familiarity with basic calculus, differential equation, and MATLAB programming.

PTE 502: Advanced Reservoir Characterization (3 units) T 3:30 to 6:10pm
Sources of data for reservoir characterization; cross-disciplinary integration; geologic models; sequence stratigraphic, lithologic, well test and geophysical models; 4-D seismic; compartmentalized and fractured reservoirs; error and risk analysis.

PTE 507: Engineering and Economic Evaluation of Subsurface Reservoirs (3 units) W 12:30 to 3:10pm
Volumetric reservoir performance; reservoirs under water influx and gas cap expansion; coning; gravity drainage; estimation of reserves and ultimate recovery.

PTE 519: Integrated Physical and Cyber Security for Oil and Gas Operations (3 units) TH 6:40 to 9:20pm
Infrastructure Security, Resilience and Management of Digital Oil Fields, Process Control Networks in exploration and production, refining and chemical plants, Asset Integrity principles, case histories.

PTE 542: Carbonate Rocks (2 units) M 12:30 to 2:10pm
Classification; porosity development; source rocks; wettability; capillary pressure curves; compressibility; surface areas; relative permeabilities; various petrophysical properties; formation evaluation; overpressures; thin section analysis.

PTE 574: Optimization Methods for Subsurface Energy Resources Development (3 units) Time: F 9-11:40am
Optimization algorithms for oilfield development, including well control optimization, well placement, open-loop and closed-loop model predictive control, and robust optimization. Prerequisite: PTE 500. Recommended preparation: Familiarity with linear algebra, vector calculus, general reservoir engineering and MATLAB programming language.

PTE 582: Fluid Flow and Transport Processes in Porous Media (3 units) W 6:40 to 9:20pm
Principles of single and multiphase flow through porous media; mechanisms of immiscible and miscible displacement; momentum, heat and mass transport in porous media.

PTE 588: Smart Oilfield Data Mining (3 units) TH 11am to 1:40pm
Principles of single and multiphase flow through porous media; mechanisms of immiscible and miscible displacement; momentum, heat and mass transport in porous media.

All courses are available online through the Distance Education Network at USC:

• Classes begin August 24, 2015 and end December 4, 2015.
• Last day to register and settle without a late fee is August 21, 2015.
• Last day to register and add a class, or drop without a mark of W and receive a 100% refund is September 11, 2015.
• Finals are scheduled from December 9–16, 2015. It is the student’s responsibility to be available for all exams. For the finals schedule (as assigned by the University), please visit the website: http://www.usc.edu/academics/classes/term_20153/finals.html.

To register for classes, please send your ID number and class selection (state if you are on campus or off campus) to Idania Takimoto at takimoto@usc.edu