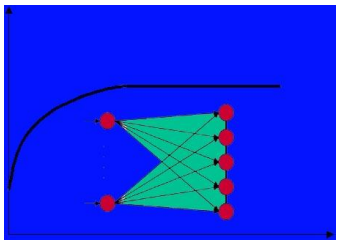

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Module 1.
Integrated Seismic and Petrophysical Theory

Petrophysics of Clastic Formations
Petrophysics of Carbonate Formations
The effective model – from micro to macro-elastic field.
The rev: "representative elementary volume".
Effective medium modeling.
Elementary and effective medium elastic parameters calculations: k, mu, rho.
Effective models: Gassmann, Hertz-Mindlin, Voigt, Reuss, Hill,
Hashin-Shtrickman.
Upgrade to the macro-field theory.
The Aki-Richards AVO equations.
Zoeppritz equations linear approximations: Wiggens, Shuey, Borthfeld.
Intercept and gradient parameters.
P-S Velocity, Poisson ratio, density dependency.

Upgrade to the macro-field theory: near, mid and far offset range stack.
Shuey and Hilterman theory.
Rock physics properties influence on angle stacks.
Normal incidence and Poisson reflectivity.
Review of elastic parameters and their effective medium composition in the AVO equations context.
Effective medium averaging equations.
Gamma/Poisson relations.

V and density interpretation.
V-density transforms.
Alternative equations for normal incidence reflection coefficient (NI-RC).
NI-RC: V and Rho sensitivity.
Thin bed analysis.

AVO classifications.
AVO class reconaissance on angle stacks.
Predicting hydrocarbon response in Poisson - RC xplots.

Abnormal pore pressure from seismic data.
Hydrostatic, overburden, effective P.