



SOCIETY OF EXPLORATION
— GEOPHYSICISTS —

SEG NEW COURSE PROPOSAL

INSTRUCTOR NAME: _____ ARE YOU AN SEG MEMBER? _____

IF NOT, WOULD YOU CONSIDER MEMBERSHIP? _____

PROPOSED COURSE TITLE: _____

WHY IS THIS COURSE IMPORTANT/NEEDED? _____

WHAT SEGMENTS OF THE OIL/GAS/ENERGY INDUSTRIES ARE YOU TARGETING? _____

PROVIDE A BRIEF SUMMARY OF THE COURSE: _____



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PROVIDE LEARNER OUTCOMES:

Learner Outcomes: Please provide 3-5 learner outcomes. These should clearly state what the learner will be able to *do* at the completion of your course. Example words to use: Define, duplicate, classify, discuss, interpret, distinguish, construct, etc. ***Avoid*** vague words, such as appreciate, learn, understand, and comprehend.

1.

2.

3.

4.

5.

PROPOSED COURSE LENGTH: 1 day 2 days

WHAT IS YOUR PREFERRED INSTRUCTIONAL PLATFORM:

- VIRTUAL
- IN-PERSON
- VIRTUAL OR IN-PERSON

WHO IS THE INTENDED AUDIENCE:

- ENTRY LEVEL
- INTERMEDIATE LEVEL
- ADVANCED LEVEL

WHAT PREREQUISITES, IF ANY, EXIST (Knowledge/Experience/Education Required):

COURSE CATEGORY TOPICS: Please use the Resource Matrix on page 3 to select the appropriate Topic(s) for this course.



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ATTACH A CV AND A BIOGRAPHY

The biography is for placement on our SEG Course Curriculum webpage. Please note specific qualifications, training, or experience, related to course design, development, delivery, and execution.

Please submit this New Course Proposal form to SEG Professional Development at ce@seg.org.

ADMIN USE ONLY

SEG Continuing Education Committee Chair Recommendation/Approval:

- Course provisionally approved.
- Course provisionally approved with recommendations (non-binding)
- Course provisionally approved with required changes noted below.
- Course NOT provisionally approved.

Additional Comments:

SEG Continuing Education Committee Chair Date



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SEG RESOURCE MATRIX

Please use the information below to indicate the Level(s) and Topic(s) that would be most appropriate for your course.

Example: Level(s): 0-1, 1-2, Topic(s): C7, A4, G1

Step 1: Level(s). Please select all that apply.

Level 0 – 1 Awareness	Level 1 – 2 Basic Application	Level 2 – 3 Skilled Application

Step 2: Topic(s). Please indicate below the Topic(s) that apply. If more than one topic applies, please number them, with 1 being the primary topic.

Selection	Key	Topic
		Seismic Reflection Principles
	A1	Signal Theory and Analysis
	A2	Seismic Wave Propagation
	A3	Seismic Reflection Applications in Exploration & Production
	A4	Rock Physics Applied to Seismic
	A5	Geophysical Applications for Unconventional Reservoirs
		Borehole Geophysics and Non-Seismic Exploration Methods
	B1	Borehole Seismic Methods
	B2	Electromagnetic (EM) Techniques including Magnetotellurics (MT) and Controlled-source EM
	B3	Gravity and Magnetic Methods
		Surface Seismic Acquisition Techniques
	C1	Detection & Recording Instruments
	C2	Land Surveying and Positioning
	C3	Marine Positioning and Navigation
	C4	2D/3D Survey Design, Planning and Layout
	C5	Noise Suppression/Array Design
	C6	Seismic Sources-Land
	C7	Multicomponent Surveys
	C8	Seismic Sources-Marine
	C9	Seismic Acquisition for 4D
	C10	Illumination and Shot Record Modeling
	C11	2D/3D Survey Design, Planning and Layout (Near Surface)
	C12	Detection & Recording Instruments (Near Surface)
	C13	Surveying and Positioning (Near Surface)



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Seismic Processing Techniques	
D1	Seismic Processing Principles and Flow Design
D2	Near Surface/Static Corrections
D3	Deconvolution, Designature and Wavelet Processing
D4	Filtering
D5	Time-Lapse Processing Methods
D6	Amplitude Scaling and Corrections
D7	Noise and Multiple Suppression
D8	Stacking Velocity Analysis, NMO Corrections, and Stacking
D9	Seismic Processing Quality Control
D10	Seismic Migration
D11	Seismic Velocity Analysis and Imaging
Seismic Interpretation Techniques	
E1	Seismic Stratigraphic and Facies Analysis
E2	Fault Interpretation Using Seismic Data
E3	Seismic Horizon Contouring
E4	Velocity Modeling and Depth Conversion
E5	Quantitative Seismic Interpretation (QI)
E6	Seismic Attribute Analysis
E7	4D Seismic Interpretation Methods
E8	Pre- and Poststack Inversion
E9	Seismic Structural Interpretation
E10	3D Visualization and Workstation Capability
E11	Amplitude Versus Offset Analysis
E12	Synthetic Seismograms - Construction and Use
E13	Fundamentals of Exploration Geophysics
Seismic Migration/Imaging	
F1	Seismic Migration Principles - Poststack
F2	Prestack Time Migration
F3	Prestack Depth Migration
F4	Full Waveform Inversion (FWI)
Geology and Petrophysics for Interpreters	
G1	Structural Geology
G2	Sedimentary Environments and Facies Analysis
G3	Reservoir Properties and Volumetrics
G4	Petrophysical Properties and Analysis
Computer Skills	
H1	Scientific Programming
H2	Scripting



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	H3	System Administration
	H4	Web Programming
	H5	High-Performance Computing (HPC) Programming
		Environmental Impact
	I1	Environmental Impact of Geophysical Operations -- Land and Transition Zone
	I2	Environmental Impact of Geophysical Operations--Marine
	I3	Environmental Impact of Geophysical Operations - Land and Transition Zone (Near Surface)
		Core Competencies for Near Surface
	J1	Numerical Modeling
	J2	Numerical Inversion
	J3	DC Resistivity & Electrical Resistivity Imaging (ERI)
	J4	Induced Polarization Method (IP) and Complex Resistivity (CR)
	J5	Transient Electromagnetic or Time-Domain EM (TEM)
	J6	EM Induction, or Frequency-Domain EM (FDEM)
	J7	Magnetotellurics including Controlled-Source EM (CSEM) and Audio-Magnetotellurics (CSAMT)
	J8	Self-Potential Method (SP)
	J9	Ground Penetrating Radar (GPR)
	J10	Very-Low Frequency Electromagnetics (VLF)
	J11	Gravity Methods
	J12	Magnetic Methods
	J13	Subsurface Interpretation
	J14	Active- and Passive-Source Surface Wave Analysis
	J15	Borehole Methods
	J16	Noise
	J17	Seismic Refraction (SR) and Seismic Refraction Tomography (SRT)
		Hydrogeology
	K1	Aquifer Types, Properties, and Mapping
	K2	Hydrogeochemistry