Program Advanced Seismic Data Acquisition and Processing

Month 1

Topic	Dates	hrs	Dates due
Skype introduction conference	1		
Video:1.1			
Literature	1-30	9.5	30
Chapter 1: The principles and limitations of geophysical exploration methods Q&A Chapter 1		0.5	3
Video: 1.2, 1.3, 1.4			
Chapter 3: Elements of seismic surveying Q&A Chapter 3		3.0	10
Video: 1.5			
Chapter 5: Seismic refraction surveying Q&A Chapter 5		3.0	17
Video: 1.6			
Chapter 4a: Seismic reflection surveying Q&A Chapter 4a		3.0	24
Video: 1.7, 1.8			
Exercises: Acquisition	1-30	3.5	30
Ex_Seismic Project		0.5	9
Ex_Shot raypaths		0.5	12
Ex_Refraction		0.5	16
Ex_Field record		0.5	19
Ex_Surface and subsurface diagrams for end-on		0.25	23
Ex_Surface and subsurface diagrams for split-spread		0.25	23
Ex_3D marine survey design		0.5	26
Ex_Array design		0.5	30
Video 1.9, 2.0			
Skype progress conference	29		
Total		13.0	

Ref . An Introduction to Geophysical Exploration, Kearey, Brooks, Hill, ISBNB0-632-04929

Month 2

Topic	Dates	hrs	Dates due
Literature	1-30	8.0	30
Chapter 4b: Seismic reflection surveying Q&A Chapter 4b*		4.0	7
Video: 2.1			
Chapter 2: Geophysical data processing Q&A Chapter 2 *		4.0	15
Video: 2.2, 2.3			
Exercises: Wave Propagation	1-12	3.0	12
Ex_Propagation of seismic waves		0.5	2
Ex_Snell's Law		0.5	4
Ex_Fermat		0.5	6
Ex_Huygens		0.5	8
Ex_Fresnel zone		0.5	10
Ex_Reflecton and Transmission		0.5	12
Exercises: Processing I	12-31	3.5	31
Ex_Sampling and Aliasing		0.5	16
Aliasing in frequency domain (see Ex_Sampling and Aliasing)		0.5	18
Ex_Near-surface Statics		0.5	20
Ex_Stacking Velocity picking		0.5	22
Ex_Velocity		0.5	24
Ex_KF Transform		0.5	26
Ex_Multiple Elimination		0.5	31
Videos: 2.4, 2.5, 2.6			
Skype progress conference			
Total		14.5	

Ref . An Introduction to Geophysical Exploration, Kearey, Brooks, Hill, ISBNB0-632-04929

Month 3

Topic	Dates	hrs	Dates due
Literature	1-31	5	31
Chapter 4 : Migration Q&A Chapter 4		2.0	
Video: 2.7			
Special Topics: Depth conversion, Direct Hydrocarbon Indicators Q&A Special Topics *		3.0	
Exercises: Processing II	1-12	3.5	12
Ex_Correlation, Convolution, Deconvolution		0.5	2
Ex_Correlation and Convolution		0.5	4
Ex_Least-squares Deconvolution		0.5	6
Ex_DFT		0.5	8
Ex_DFT phase shift		0.5	10
Ex_FFT		0.5	11
Ex_Excel Correlation		0.25	12
Ex_Excel Convolution		0.25	12
Exercises: Migration	12-21	3.0	21
Ex_Migration displacement		0.5	13
Ex_Diffraction curve		0.5	15
Ex_Migration using diffraction curves		0.5	17
Ex_Migration using wavefronts		0.5	18
Ex_De-Re-Migration		0.5	19
Ex_Resolution		0.5	21
Exercises Depth conversion	21-25	2.0	25
Ex_DT conversion I		0.25	23
Ex_DT conversion II		0.25	23
Ex_TD conversion by vertical stretch		0.5	24
Ex_TD conversion by raytracing		0.5	25
Exercises: Direct Hydrocarbon Indicators	26-27	0.5	27
Ex_Dimming		0.5	27
Exercises: VOI	28-31	1.0	31
Ex_VOI		1.0	31
Video: 2.8, 2.9, 2.10			
Final test			
Skype final conference	31		31
Total		15.0	
Grand Total		42.5	

Ref . An Introduction to Geophysical Exploration, Kearey, Brooks, Hill, ISBNB0-632-04929

For information on the fee and registration please contact info@epts.org .