CGSB Recommended Minimum Knowledge Requirements for Registration **Revisions agreed during**

CGSB meeting on: ***20-Oct-07***

			Streams		
		Groups	***Geology***	***Environmental Geoscience***	***Geophysics***
3	1A	**Compulsory Foundation Science (Total 3 EUs)** (1 EU in each area required) *(Philosophy statement on need for coverage of these subjects to be crafted and inserted)*	Chemistry Mathematics Physics	Chemistry Mathematics Physics	Chemistry Mathematics Physics
6	1B	**Additional Foundation Science (Total 6 EUs)** (6 EUs required, no more than 2 Additional Science EUs in any one subject.) *(Philosophy statement on need for coverage of these subjects to be crafted and inserted. Statement will include recommendation that Biology* be covered by those in the Environmental Geoscience stream and explanation that "geo" topics containing appropriate science may be substituted - e.g. Geostatistics for Statistics, etc.)*	Biology Chemistry Computer Programming Mathematics Physics Statistics	Biology* Chemistry Computer Programming Mathematics Physics Statistics	Biology Chemistry Computer Programming Mathematics Physics Statistics
4	2A	**Compulsory Foundation Geoscience (Total 4EUs)** (1 EU in each area required) *(Philosophy statement on need for coverage of these subjects to be crafted and inserted)*	Field Techniques Mineralogy and Petrology. Sedimentation and Stratigraphy Structural Geology	Field Techniques Mineralogy and Petrology. Sedimentation and Stratigraphy Structural Geology	Field Techniques Mineralogy and Petrology. Sedimentation and Stratigraphy Structural Geology
5	2B	**Additional Foundation Geoscience (Minimum Total 5 EUs)** (5 EUs required. Geology and Environmental Geoscience - a minimum of 1 and at most 2 from each sub-group; Geophysics - no more than 1 from each sub-group) *(Philosophy statement on need for coverage of these subjects to be crafted and inserted)*	Geochemistry Geophysics Igneous Petrology Metamorphic Petrology Sedimentary Petrology Sedimentology Glacial Geology or Geomorphology Remote Sensing	Geochemistry Geophysics Hydrogeology or Hydrology Engineering Geology Geomorphology or Soil Science Glacial Geology Remote Sensing	Data processing / Inversion / Time Series Analysis Global Geophysics / Physics of Earth Seismology/Seismic Methods Exploration Geophysics Potential Fields / Gravity & Magnetics Electrical & electromagnetic Methods

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9	2C **Other Geoscience/Science (Minimum Total 9 EUs)** (9 EUs must be from the EUs list or must be at a second level or higher acceptable for science credit toward a degree in science, applied science or engineering and relevant to geoscience). Extra subjects not used in 2A and 2B can be used in 2C. No one subject can be used to cover more than one requirement.	The following groupings of subject areas could be used to satisfy the knowledge requirements for the other geoscience/science (2C). Within each subject area are listed possible topics that could be used to satisfy the requirements. The list is not meant to be exhaustive, but is provided as guide to topics that could satisfy the geoscience knowledge requirements.	The following groupings of subject areas could be used to satisfy the knowledge requirements for the other geoscience/science (2C). Within each subject area are listed possible topics that could be used to satisfy the requirements. The list is not meant to be exhaustive, but is provided as guide to topics that could satisfy the geoscience knowledge requirements.	These example lists show the breadth of topics that are relevant to different areas of geophysics practice. EUs must be chosen from at least 4 of the subject areas numbered below.
	(Philosophy statement on need for coverage of these subjects and realted topics to be crafted and inserted. Statement will include clarification that the 2C lists for each stream are not mutually exclusive and that topics listed in any of the three 2C streams can be covered. Statement will also indicate that while knowledge of Canadian and Regional geology is desirable it is not required as basic geoscience knowledge for licensure)	**Communication** Thesis Technical Writing **Earth Systems** Climatology Meteorology Oceanography Paleo Earth Systems **Environmental** Hydrogeology Hydrology Environmental Geology Limnogeology Biogeochemistry **Engineering Geology** **Field Techniques** **Geochemistry** Exploration Geochemistry Environmental Geochemistry Isotope Geochemistry Aqueous Geochemistry **Geomorphology** Surficial Processes and Landforms Quaternary Geology Soil science/Pedology Permafrost geomorphology **Geophysics** Physics of the Earth Exploration Geophysics Applied Geophysics Environmental geophysics **Geostatistics** **Geotechnical** Natural Hazards Engineering Geology Soil Mechanics Rock Mechanics **Mineralogy** Crystallography	**Communication** Thesis Technical Writing **Earth Systems** Climatology Meterology Oceanography Paleoenvironmental Studies Paleoclimatology Paleoecology Paleobiology **Environmental Assessment** **Field Techniques** **Geochemistry** Environmental Geochemistry Isotope Geochemistry Aqueous geochemistry Biogeochemistry Atmospheric Geochemistry Analytical Techniques **Geomorphology/Surficial** Natural Hazards Surface Processes and Landforms Quaternary Geology Soil Science/Pedology Glaciology **Geophysics** Environmental Geophysics Exploration Geophysics Applied Geophysics **Geotechnical** Engineering Geology Soil Mechanics Rock Mechanics Slope Stability Resource Geotechnics **Hydrology/Hydrogeology** Contaminant Transport Hydrogeology Hydrology Fluid Mechanics	**Applied Math/Physics** Calculus Computer-Controlled Instrumentation Condensed Matter Physics Continuum Mechanics Data Processing and Inversion Digital Signal Processing Electromagnetic Theory Electronics for Scientists Fluid Dynamics Fluid Flow Porous Media Geostatistics Integral Transforms Isotopes Linear Algebra Mathematical Physics Nuclear Physics Numerical Methods/Computing Optics Partial Differential Equations Signal Analysis Vector and Tensor Analysis **Communication** Thesis Technical Writing **Earth & Planetary Geoscience** Atmosphere and Space Science Geomagnetism/Paleomagnetism Global Geology Global Geophysics **Field Techniques** **Fundamental Math/Physics** Complex Analysis Differential Equations Electricity & Magnetism Mechanics Thermodynamics Vibrations, Waves & Optics **Geology** Geochemistry Petrology Igneous Petrology Metamorphic Petrology Sedimentary Petrology

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		Geology	***Environmental Geoscience***	***Geophysics***
		X-ray Crystallography		Sedimentology
2C	Continued	Optical Mineralogy Analytical Methods	**Mineralogy/Petrology** Crystallography X-ray Diffractometry Analytical Methods	Soil and Rock Mechanics Structural Geology/Tectonics
		Paleontology Micropaleontology Macropaleontology Palynology Paleobiology	**Paleontology** Micropaleontology Macropaleontology Paleobiology Palynology	**Geophysical Methods & Interpretation** Marine Geophysics Electromagnetics Gravity & Magnetics Seismology Radiometrics Seismic Interpretation
		Petrology Igneous Petrology Volcanology Metamorphic Petrology Sedimentary Petrology	**Quantitative Analysis** Geostatistics Computer Application to Geoscience Geographic Information System	**Modern Physics**
		Quantitative Analysis Geostatistics Computer Programming Geographic Information Systems	**Regional Geology** Geology of Canada Geology of N. America	**Near Surface Geoscience** Air Photo/Land Sat Analysis Environmental Geophysics Geomorphology Geographic Information Systems Glacial/Quaternary Geology Remote Sensing
		Regional Geology Geology of Canada Geology of N. America	**Remote Sensing** Remote Sensing Airphoto Interpretation	**Regional Geology** Geology of Canada Geology of N. America
		Remote Sensing Airphoto Interpretation Remote Sensing	**Resource Geology** Economic Geology Ore Petrology Coal Geology Petroleum Geology Industrial Minerals	**Resource Geoscience** Fluid Flow in Porous Media Hydrogeology/Hydrology Ore Deposits Geology Petroleum Geology Reservoir Engineering Well Log Analysis
		Resource Geology Economic Geology Ore Petrology Coal Geology Petroleum Geology Industrial Minerals	**Sedimentology** Chemical Sedimentology Clastic Sedimentology Organic Sedimentology Glacial Geology Limnogeology	
		Sedimentology Chemical Sedimentology Clastic Sedimentology Organic Sedimentology Glacial Geology	**Stratigraphy** Historical Geology Sequence Stratigraphy Stratigraphic Paleontology Subsurface Geology Geochronology	
		Stratigraphy Historical Geology Sequence Stratigraphy Stratigraphic Paleontology Subsurface Geology Geochronology	**Structure** Tectonics Micro-structures Principles of Rock Deformation Structural Geology	
		Structure Tectonics Micro-structures Principles of Rock Deformation Structural Geology		
27	**Minimum EU Requirement TOTAL**	***27***	***27***	***27***

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	Groups	Streams		
		Geology	***Environmental Geoscience***	***Geophysics***
3	Professional Skills - not counted above but recommended	Law and Ethics	Law and Ethics	Law and Ethics