

CBEPS Syllabus		APEGA Technical Examinations	University of Calgary Equivalents	
			CBEPS	APEGA
S1 – Mathematics and Science	Probability & Statistics	04-BS-2 Probability & Statistics	ENGG 319	ENGG 319
	Numerical Methods	04-BS-5 Advanced Mathematics		ENGG 407
	Calculus	20-Prelim-1 Calculus	MATH 275 MATH 277 MATH 375	MATH 275 MATH 277
		04-BS-1 Mathematics	MATH 211	MATH 375 MATH 211
	Physics	20-PRELIM-3 Physics	PHYS 259	PHYS 259 PHYS 365
	Computing	20-Prelim-2 Computing	ENGO 333	ENDG 233
S2 – Modeling and Analysis	Filtering	18-Geom-A2 Adjustment of Observations & Data Analysis 18-Geom-B3 Networks & Precise Engineering Surveys	ENGO 363 ENGO 419	ENGO 327 ENGO 361 ENGO 419
	Estimation & Approximation			
	Statistical Data Analysis			
	Modeling & Prediction			
S4 – Surveying	High Precision Surveying	18-Geom-A1 Surveying	ENGO 343 ENGO 443	ENGO 567
	Survey Design, Simulation & Analysis			
	Data Collection Including Field Procedures			
	Common Survey Types (Cadastral, Topographic, Control, Etc.)			
	Observable Types & Quality Assessment			
	Instrumentation Testing & Utilization			
				ENGO 103 ENGO 343 ENGO 501

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S3 – Geodesy	Reference Systems, Geodetic Coordinate Computations & Map Projections	18-Geom-A3 Geodesy & Positioning	ENGO 421 ENGO 423	ENGO 421 ENGO 423
	Gravity Field & Height Systems			
	Satellite Positioning Systems	18-Geom-B2 Satellite Navigation	ENGO 465	ENGO 465

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S5 – Remote Sensing	Introduction to Remote Sensing	18-Geom-A5 Remote Sensing and Image Analysis	ENGO 435	ENGO 435
	Remote Sensing Platforms			
	Passive Remote Sensing: Sensors			
	Passive Remote Sensing: Image Processing & Manipulation			
	Passive Remote Sensing: Applications			
	Active Remote Sensing Sensors and Applications: RADAR	18-Geom-A4 Photogrammetry	ENGO 431	ENGO 431
	Active Remote Sensing Sensors & Applications: LIDAR			
	Information from optical and range data: - Photogrammetric Computer Vision			
	Active Remote Sensing Sensors: SONAR Technology and Hydrography	18-Geom-B4 Hydrography	ENGO 545	ENGO 545
	S7 - Law, Tenure, Boundaries, Cadastres, and Planning	Law, Tenure, Boundaries & Cadastral Systems	18-Geom-A6 Cadastral Studies	ENGO 455
18-Geom-B5 Survey Law			ENGO 579	ENGO 579
Land Use Planning		18-Geom-B6 Land Use Planning & Environmental Management	ENGO 581	ENGO 581
Economics		98-CS-1 Engineering Economics		ENGG 209

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S6 – GIS	Fundamentals of GIS	18-Geom-A7 Geospatial Information Systems	ENGO 351 ENGO 451	ENGO 351
	Spatial Databases & Models			
	Data Acquisition & Manipulation			
	Geospatial Data Analysis & Analytical Modeling			
	Data Visualization & Map Making			
	Web/Cloud GIS & Mapping			
	GIS Project Design & Implementation			
	Geospatial Programming			
	Building Information Modeling (BIM)			
	Digital Elevation Modeling	18-Geom-B1 Digital Terrain Modelling		ENGO 573
S8 – Professional Practice	Business Law & Practices	98-CS-2 Engineering in Society - Health, Safety, and the Environment	ENGG 513	ENGG 513
	Health & Safety			
	Professionalism & Ethics			
	Diversity, Equity & Inclusion	98-CS-3 Management Concepts for Engineers	ENGO 501 ENGO 502	ENGG 515
	Management & Business Skills			
	Project Management			
Communications		COMS 363		