Bachelor of Engineering (Geomatic Eng.) Course Structure (Old)

The following is an outline of the 1998 geomatics degree course. The fourth year of this course will be tought in 2000 for the last time.

YEAR 1

SESSION 1		Hours per week	SESSION 2		Hours per week
GMAT1111	Introduction to Computing	4	GMAT2042	Professional Communications	3.5
GMAT1713	Introduction to Geomatic Eng.	3	GMAT2112	Principles of Computer Processing	3
MATH1131	Mathematics 1A	6	GMAT2131	Survey Computations	2.5
or MATH1141	Higher Mathematics 1A		GMAT2222	Introduction to Geodesy	2.5
PHYS1998	Physics I	6	GMAT2712	Introduction to Land Surveying	3
			MATH1231	Mathematics 1B	6
			or MATH1241	Higher Mathematics 1B	

YEAR 2

SESSION 1		Hours per week	SESSION 2		Hours per week
GMAT3013	Surveying Instruments	4.5	GMAT4011	Surveying Techniques	5.5
GMAT3122	Computer Graphics 1	2.5	GMAT4052	Field Projects 1 *	2
GMAT3231	Geodetic Computations	2.5	GMAT4112	Data Analysis & Computing 1	3
MATH2009	Engineering Mathematics 2	4	GMAT4222	Geodetic Positioning	2.5
MATH2829	Statistics SU	3	GMAT4811	Land Economics & Valuation	2.5
PHYS2969	Physics of Measurements	3	MATH2009	Engineering Mathematics 2	4
	General Education	2		General Education	2

YEAR 3

SESSION 1		Hours per week	SESSION 2		Hours per week
CIVL0646	Introduction to Water Engineering	3	CIVL0656	Introduction to Municipal Engineering	3
GMAT5011	Engineering Surveying	3.5	GMAT6052	Field Projects 2**	4
GMAT5112	Data Analysis & Computing 2	2.5	GMAT6512	Principles of Image Geometry	3
GMAT5122	Computer Graphics 2	2.5	GMAT6522	Remote Sensing	3
GMAT5222	GPS Surveying	2.5	GMAT6532	Spatial Information Systems 1	3
GMAT5621	Cadastral Surveying 1	3	GMAT6621	Cadastral Surveying 2	3
PLAN1093	Planning Studies	2		General Education	2
	General Education	2			

YEAR 4

SESSION 1		Hours per week	SESSION 2		Hours per week
GMAT7052	Field Projects 3	3	GMAT8002	Thesis Part B	6
GMAT7512	Photogrammetry & Mapping	3	GMAT8011	Project Surveying	3
GMAT7532	Spatial Information Systems 2	2	GMAT8222	Physical and Space Geodesy	2.5
GMAT7612	Land Mgt & Devel Project 1	2	GMAT8311	Offshore Positioning	2.5
GMAT7722	Project Management 1	3	GMAT8612	Land Mgt & Devel Project 2	2
GMAT7811	Land Subdivision & Development	3	GMAT8712	Professional Practice Part B	1
GMAT7001	Thesis Part A	2	GMAT8722	Project Management 2	3
GMAT7711	Professional Practice Part A	2			

Bachelor of Engineering (Geomatic Eng.) Course Structure (New)

The first three years of this new course will be taught in 2000. The entire new course will be implemented by 2001.

UOC: unit of credit   ***HPW: hours per week***

SESSION 1   SESSION 2

YEAR 1		UOC	(HPW)			UOC	(HPW)
GMAT1100	Principles of Surveying	6	(5)	GMAT1150	Survey Methods & Comps	6	(5)
GMAT1300	Comp Applications in Geomatics	6	(4)	GMAT1200	Visualisation of Spatial Data	6	(4)
MATH1131	Mathematics 1A or	6	(6)	GMAT1400	Land Studies in Geomatics	6	(5)
or MATH1141	Higher Mathematics 1A	6	(6)	MATH1231	Mathematics 1B or	6	(6)
PHYS1998	Physics I	6	(6)	or MATH1242	Higher Mathematics 1B	6	(6)

YEAR 2		UOC	(HPW)			UOC	(HPW)
GMAT2100	Elect Surv Instrumentation	6	(5)	GMAT2110	Elect & GPS Positioning Tech	6	(5)
GMAT2350	Computing for Spatial Info Sc	3	(3)	GMAT2200	Geog Info Systems & CAD	6	(5)
GMAT2700	Geometry of Coord Ref Sys	6	(5)	GMAT2300	Analysis of Observations	3	(3)
MATH2829	Statistics SU	3	(3)	MATH2019	Engineering Mathematics 2CE	6	(5)
PHYS2969	Physics of Measurements	3	(3)		General Education	3	(2)
	General Education	3	(2)				

YEAR 3		UOC	(HPW)			UOC	(HPW)
GMAT3200	Geospatial Inform Tech & App	6	(5)	GMAT3410	Land Economics & Valuation	3	(2)
GMAT3400	Cadastral Surveying 1	3	(3)	GMAT3500	Photogramm & Rem Sensing	6	(5)
	General Education	3	(2)		General Education	3	(2)
	Electives	12			Electives	12	

Electives

GMAT3100	Surveying Applications	6	(5)	GMAT3150	Field Projects	6	(5)
COMP1011	Computing 1A	6	(6)	GMAT3450	Cadastral Surveying 2	3	(3)
COMP1021	Computing 1B	6	(6)	COMP1011	Computing 1A	6	(6)
COMP2011	Data Organisation	6	(5)	COMP1021	Computing 1B	6	(6)
CVEN0646	Water & Wastewater Engineering	3	(3)	COMP2011	Data Organisation	6	(5)
MATH1081	Discrete Mathematics	6	(6)	CVEN0656	Soil & Pavement Engineering	3	(3)
PLAN1093	Planning Perspectives	3	(2)	MATH1081	Discrete Mathematics	6	(6)

and other electives with the approval of the Head of School.

YEAR 4 *(from 2001)*		UOC	(HPW)			UOC	(HPW)
GMAT4000	Thesis Part A	3	(2)	GMAT4001	Thesis Part B	9	(8)
GMAT4700	Project Management 1	3	(3)	GMAT4750	Project Management 2	3	(3)
GMAT4850	Geomatic Eng for Sustainability	3	(3)		Electives	12	
	Electives	15					

Electives

Any remaining Year 3 electives and   Any remaining Year 3 electives and

GMAT0580	Mining Surveying	3	(3)	GMAT4020	Project in Geomatic Eng	6	(5)
GMAT4020	Project in Geomatic Eng	6	(5)	GMAT4450	Land Manag & Devel Proj.2	3	(2)
GMAT4400	Land Manag & Devel Proj.1	3	(2)	GMAT4910	Modern Navigation & Pos	6	(5)
GMAT4410	Land Subdivision & Development	3	(3)	GMAT9211	Introduction to Geodesy	6	(3)
GMAT4900	Principles of GNSS Positioning	6	(5)	PLAN1022	The Development Process	3	
GMAT9121	Network & Deformation Analysis	6	(3)	PLAN2012	Economic Dev Planning	3	
GEOG3911	Environmental Impact Assessm	3		PLAN3032	Integrated Planning 3-New Dev	6	

The following electives may be chosen once COMP1011, COMP1021 and MATH1081 have been completed.

COMP2021	Digital System Structures	6	(5)	COMP2021	Digital System Structures	6	(5)
COMP2041	S'ware Construct: Tech & Tools	6	(5)	COMP3111	Software Engineering	6	(5)
COMP2411	Logic & Logic Programming	6	(5)	COMP3121	Algorithms & Programm Tech	6	(5)
COMP3211	Comp Organisation & Design	6	(5)	COMP3131	Parsing & Translation	6	(5)
COMP3231	Operating Systems	6	(5)	COMP3221	Microprocessors & Interfacing	6	(5)
COMP3241	Real-Time Sys: Specification,	6	(5)	COMP3311	Database Systems	6	(5)
	Design & Implementation			COMP3421	Computer Graphics	6	(5)
COMP3331	Comp Networks & Applications	6	(5)	COMP3511	Human Computer Interaction	6	(5)
COMP3411	Artificial Intelligence	6	(5)				

and other electives with the approval of the Head of School.

The School has available a list of suggested subject selections for course streams in Cadastral Surveying and Land Development as well as GPS and Geographic Information Systems. Please contact the School Office.

Bachelor of Engineering (Geomatic Eng.), Bachelor of Arts

(For students beginning in 1998 and later)

Year 1

	Session 1	Credit units (HPW)			Session 2	Credit units (HPW)	
GMAT1100	Principles of Surveying	6	5	GMAT1400	Land Studies in Geomatics	6	5
GMAT1300	Comp Applics in Geomatics	6	4	GMAT1200	Visualisation of Spatial Data	6	4
MATH1131	Maths 1A or Higher	6	6	MATH1231	Maths 1B or Higher	6	6
PHYS1998	Physics 1	6	6	GMAT1150	Survey Methods & Comps	6	5

Year 2

	Session 1	Credit units (HPW)			Session 2	Credit units (HPW)	
GMAT2700	Geometry of Coord. Ref. Sys	6	5	GMAT2200	Geog. Info. Sys & CAD	6	5
GMAT2100	Elect Surv Instrumentation	6	5	GMAT2110	Elect & GPS Pos. Tech	6	5
MATH2829	Statistics SU	3	3	MATH2019	Eng Maths 2CE	6	5
PHYS2969	Physics of Measurements	3	3		BA first level elective	6	
	BA first level elective	6					

Year 3

	Session 1				Session 2		
GMAT2350	Comp for Spatial Info. Sc	3		GMAT2300	Analysis of Observations	3	
GMAT3200	Geospatial Info Tech &App	6		GMAT3500	Photo & Rem Sens	6	
GMAT3400	Cadastral Surveying 1	3		GMAT3410	Land Economics & Valuation	3	
	BA electives	6			BA electives	6	
	Year 3 electives	6			Year 3 electives	6	

Year 3 electives

	Session 1				Session 2		
GMAT3100	Surveying Applications	6		GMAT3150	Field Projects	6	
PLAN1093	Planning Perspectives	3		GMAT3450	Cadastral Surveying 2	3	
CVEN0646	Water & Wastewater Eng	3		CVEN0656	Soil and Pavement Eng	3	

Other electives are possible with the approval of the Head of School

Year 4

	Session 1				Session 2		
GMAT4700	Project Management 1	3		GMAT4750	Project Management 2	3	
GMAT4000	Thesis Part A	3		GMAT4001	Thesis Part B	9	
GMAT4850	Geom Eng for Sustainability	3			BA electives	6	
	BA electives	6			Year 4 electives	6	
	Year 4 electives	9					

Year 4 electives

	Session 1				Session 2		
Any remaining year 3 elective				*Any remaining year 3 elective*			
GMAT4900	Pples of GNSS Positioning	6		GMAT4910	Modern Nav & Positioning	6	
GMAT4400	Land Mgt & Devel. Project 1	3		GMAT4450	Land Mgt & Devel. Project 2	3	
GMAT4410	Land Subdivision & Devel	3		GMAT4020	Project in Geomatic Eng	6	
GMAT9121	Network & Def Analysis	6		GMAT9211	Introduction to Geodesy	6	
GMAT0580	Mining Surveying	3		PLAN1022	The Development Process	3	

Other electives are possible with the approval of the Head of School

Year 5

	BA electives	12			BA electives	12
	GMAT electives	12			GMAT electives	12

Bachelor of Engineering (Geomatic Eng.), Bachelor of Science (Computer Sc.)

(For students beginning in 1998 and later)

Session 1			Session 2		

Year 1 — Credit units (HPW) / Credit units (HPW)

GMAT1100	Principles of Surveying	6 (5)	COMP1021	Computing 1B	6 (6)
COMP1011	Computing 1A	6 (6)	GMAT1150	Survey Methods and Comps	6 (5)
MATH1131	Mathematics 1A or Higher	6 (6)	MATH1231	Mathematics 1B or Higher	6 (6)
PHYS1998	Physics 1	6 (6)	GMAT	Year 1 GMAT elective	6 (4 or 5)

Year 1 elective is either GMAT1400 Land Studies in Geomatics 6 (5), or GMAT1200 Visualisation of Spatial Data 6 (4)

Year 2

GMAT2700	Geometry of Coord. Ref. Systems	6 (5)	GMAT2200	Geog. Info. Systems & CAD	6 (5)
GMAT2100	Electronic Surveying Instrumentation	6 (5)	GMAT2300	Analysis of Observations	3 (3)
MATH2829	Statistics SU	3 (3)	GMAT2110	Electr & GPS Position. Tech.	6 (5)
MATH1081	Discrete Mathematics	6 (6)	COMP2011	Data Organisation	6 (5)
PHYS2969	Physics of Measurements	3 (3)		Year 2 free elective	3 (2)

Year 3

GMAT3200	Geospatial Information Tech &App	6	GMAT3500	Photogrammetry & Rem Sens	6
GMAT3400	Cadastral Surveying 1	3	GMAT3410	Land Economics and Valuation	3
COMP2	A level 2 computing elective	6	COMP2	A level 2 computing elective	6
			GMAT3450	Cadastral Surveying 2	3
	Year 3 electives	9		Year 3 electives	6

Year 3 electives chosen from:

CVEN0646	Water and Wastewater Engineering	3	CVEN0656	Soil and Pavement Engineering	3
GMAT3100	Surveying Applications	6	GMAT3150	Field Projects	6
PLAN1093	Planning Perspectives	3			
	General Education	3		General Education	3

Year 4

GMAT4700	Project Management 1	3	GMAT4750	Project Management 2	3
COMP3	A level 3 computing elective	6	COMP3	A level 3 computing elective	6
GMAT4850	Geomatic Eng for Sustainability	3			
GMAT	Year 4 GMAT Electives	12	GMAT	Year 4 GMAT Electives	15

Year 4 GMAT electives chosen from:

GMAT4410	Land Subdivision & Development	3	GMAT4020	Project in Geomatic Eng	6
GMAT4400	Land Management & Dev Project 1	3	GMAT4450	Land Manag & Dev Project 2	3
GMAT4900	Principles of GNSS Positioning	6	GMAT4910	Modern Navigation &Pos. Tech.	6
GMAT9121	Network and Deformation Analysis	6	GMAT9211	Introduction to Geodesy	6

Year 5

GMAT4000	Thesis Part A	3	GMAT4001	Thesis Part B	9
COMP3	2 level 3Comp Sci &Eng Electives	12	COMP3	A level 3 Comp Sci &Eng Elect	6
	Year 5 Electives	9		Year 5 Electives	9

Year 5 electives may be chosen from any of the remaining GMAT year 4 electives or COMP level 3 or 4 subjects.

Other electives or arrangements of electives are possible with the approval of the Head of School

The School of Geomatic Engineering is the course authority. Students may choose to do 3 units of General Education in year 2 and another 3 units in year 3. It is possible to revert to the single BE (Geom. Eng.) degree, progress and conversion will be determined on an individual student basis by the course authority.

COMP elective subjects:

COMP2021 Digital System Structures
COMP2041 Software Construction: Techniques and Tools
COMP2411 Logic and Logic Programming
COMP3111 Software Engineering
COMP3121 Algorithms and Programming Techniques
COMP3131 Parsing and Translation
COMP3211 Computer Organisation and Design
COMP3221 Microprocessors and Interfacing

COMP3231 Operating Systems
COMP3241 Real-Time Systems: Specif, Design & Implem
COMP3311 Database Systems
COMP3331 Computer Networks and Applications
COMP3411 Artificial Intelligence
COMP3421 Computer Graphics
COMP3511 Human Computer Interaction