

AN AUSTRALIAN  
NEEDS-BASED CURRICULUM  
FOR  
GEOMATICS EDUCATION

A Thesis submitted for the degree of  
DOCTOR OF PHILOSOPHY  
of the University of New England.

by

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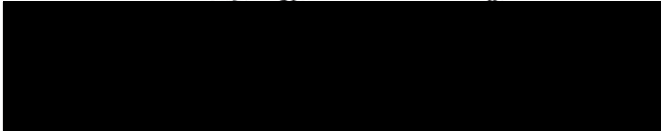
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### CANDIDATE'S CERTIFICATION

I, FRANCIS ROBERT YOUNG, certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree or qualification.

I certify that any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.



Francis Robert Young

## ABSTRACT

### AN AUSTRALIAN NEEDS-BASED CURRICULUM FOR GEOMATIC'S EDUCATION

This thesis developed and analysed the framework and principles for a curriculum which would prepare Australian geomaticans for the 21st century. Necessary professional qualities were defined and provided data to develop principles and consider implications of the curriculum

A review of Australian and overseas literature revealed the need for a geomatics' needs-based, open access curriculum. A synthesis of the contemporary geomatics' industry and wider educational and societal needs and trends provided the construct for the remainder of the research.

Qualitative phenomenographic research methodology was used to collect data from a broad spectrum of the geomatics' population across Australia. Data analysis revealed 'integrated' and 'specialisation' routes for professional education, concerned with providing geomatics' services with responsible outcomes for the client, the professional and society. It also revealed the geomaticans to be paraprofessionals, and specialist professionals, with professional relationships and credentials.

The exemplary Geomatican would be more educated than trained across all aspects of geomatics and provide a full range of geomatics' services and management. This would reinforce positively the geomatics' industry's changing philosophy towards land management and management of spatially located geographic information within a single disciplinary structure.

The research identified the skills required by future Australian professional geomaticans and the principles from which an open access curriculum could be constructed. It also demonstrated that the need existed for a curriculum to meet the geomatics' future human resource demands and strategy for geomatics' professionals. This curriculum would be required to: forge the essential qualities of a beginning professional, provide direction to the geomatics discipline, and ensure the future viability and status of geomatics' professionals.

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## ABBREVIATIONS

The following abbreviations have been used throughout the text and bibliography:-

ACSG	Australian Consulting Surveyors Association.
ACSG	L'Association Canadienne des Sciences Geodesiques et Cartographiques.
ACSM	American Congress of Surveying and Mapping.
ACSQ	Association of Consulting Surveyors, Queensland.
AGPS	Australian Government Printing Service.
AIC	Australian Institute of Cartographers.
AIMS	Australian Institute of Mining Surveyors.
AKCLIS	Australian Key Centre in land Information Studies.
ANTA	Australian National Training Authority.
ASC	American Society of Cartographers.
ASMIC	Australian Surveying and Mapping Industry Council.
ASPRS	American Society Photogrammetry and Remote Sensing.
AURISA	Australian Urban and Regional Information Systems Association Inc.
CASMA	Council of Surveying and Mapping Associations.
CISM	Canadian Institute of Surveying and Mapping.
CSQ	Consulting Surveyors Queensland.
ESRI	Environmental Systems Research Institute.
FT/PT	Full time or part time.
GIAC	Geomatics Industry Association of Canada.
GIS	Geographic Information Systems.
GPS	Global Position Systems.
ICA	International Cartographic Association.
IEMS	Institute of Engineering and Mining Surveyors.
IEMSA	Institute of Engineering and Mining Surveyors Australia.
ISA	Institute of Surveyors, Australia.
ISPRS	International Society for Photogrammetry and Remote Sensing.
LIM	Land Information Management.
LIS	Land Information Systems.
NACIS	North American Cartographic Information Society.
NACSM	National Advisory Council on Surveying and Mapping.
NOOSR	National Office of Overseas Skills Recognition.
NBEET	National Board of Employment, Education and training.
NTB	National Training Board.
OLESA	Open Learning Electronic Support Agency).
QCSMS	Queensland Centre for Surveying and Mapping Studies.
QIT	Queensland Institute of Technology.
QUT	Queensland University of Technology.
RS	Remote Sensing.
RSAA	Remote Sensing Association Australia.
SIS	Spatial Information Systems.
SMICA	Surveying and Mapping Industries Council of Australia.

TAFE	Technical and Further Education (College).
UCSQ	University College of Southern Queensland.
UQ	University of Queensland.
USQ	University of Southern Queensland.