CESM

Classification of Educational Subject Matter

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CESM

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This report is a revised version of the South African Classification of Educational Subject Matter (CESM) manual, which was published by the former Department of National Education in 1982. This 1982 edition was based in part on a report published in 1977 by the National Center for Education Statistics in the USA.

This report is based on the latest available publication of the National Center for Education Statistics, namely the *Classification of Instructional Programs: 2000 Edition*. The United States Department of Educational Research and Improvement has confirmed that the South African Department of Education can make free use of this material in its own updated report. The ability to use this material has been of great benefit to the Department of Education.

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Very helpful comments on the first draft of this revised manual were received from HESA in August 2007. These comments resulted from a comprehensive consultation process by HESA involving all its member institutions. In evaluating these comments and in finalising the revised manual the project team has consulted further with subject specialists.

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INTRODUCTION

HEMIS and the classification of educational subject matter

The Department of Education is responsible for a higher education management information system (HEMIS) which plays a central role in the collection and production of data required for quality assurance, national and institutional higher education planning, and the allocation of government funds to higher education institutions. To fulfil its responsibilities, HEMIS requires higher education institutions to submit annual data returns, which include details of:

- their approved qualifications and fields of study;
- the courses offered within their academic programmes;
- the courses for which each student is registered;
- the fields in which each academic/research staff member is active.

This list shows that the notions of "fields of study" and "courses" play central roles in the collection of these data from higher education institutions. As institutions often use unique titles for their offerings, the data collected by HEMIS cannot be based on institutional descriptions of their fields of study and courses. The Department of Education has required higher education institutions to classify the subject matter embedded in their fields of study and courses in standard ways, before submitting their HEMIS annual data returns.

The 1982 classification system

HEMIS has used, since its inception in 2000, the subject matter classifications of the old South African Postsecondary Education (SAPSE) system. This can be found in the manual published by the former Department of National Education as *Classification of Educational Subject Matter (SA-CESM)* (Report SAPSE 003: October 1982). The first draft of this report was produced in 1978, based on a 1977 report published by the National Center for Education Statistics in the USA.

The introduction to the 1982 edition describes Report SAPSE 003 as containing a set of classifications aiming to provide a single coherent system for categorising subject matter, irrespective of the level of instruction or type of institution. It adds that the purpose of this classification system is that of facilitating the recording, reporting and comparing of subject matter, both within institutions and in communications with a national Department of Education. The 1982 introduction further stresses that the classification system is not intended for use as a framework for the organisation of institutions, faculties, departments and other educational groupings.

The 1982 edition of Report SAPSE 003 contains 22 broad subject categories, described as "first order categories" (Table 1). To allow for greater detail, each broad (first order) subject matter area is disaggregated into descending hierarchical levels, also referred to as "orders". The first order categories are broken down into a set of second order categories, and each of these second order categories are broken down into a set of third order categories. Some third order categories are broken down into fourth order categories. Examples of these various orders of categories can be seen in Table 2 which follows.

Table 1

1982 Subject Matter Categories	
01	Agriculture and Renewable Natural Resources
02	Architecture and Environmental Design
03	Arts, Visual and Performing
04	Business, Commerce and Management Sciences
05	Communication
06	Computer Science and Data Processing
07	Education
08	Engineering and Engineering Technology
09	Health Care and Health Sciences
10	Home Economics
11	Industrial Arts, Trades and Technology
12	Languages, Linguistics and Literature
13	Law
14	Libraries and Museums
15	Life Sciences and Physical Sciences
16	Mathematical Sciences
17	Military Sciences
18	Philosophy, Religion and Theology
19	Physical Education, Health Education and Leisure
20	Psychology
21	Public Administration and Social Services
22	Social Sciences and Social Studies

Table 2

Example of hierarchical ordering in 1982 classification system		
Order or level	**Code number**	**Description**
First order	01	Agriculture and Renewable Natural Resources
Second order	01 05	Horticulture
	01 06	Plant sciences
Third order	01 05 04	Landscaping
	01 05 05	Production of fruits
	01 06 04	Plant management and production
	01 06 05	Plant nutrition
Fourth order	01 06 04 01	Production of field crops
	01 06 04 02	Production of pastures

Problems with the 1982 classifications emerged when HEMIS data began to be used for national higher education planning purposes, for responses to data queries about student enrolments and student outputs, and then for the classification of full-time equivalent (FTE) student enrolments into the 4 funding groups of the new funding framework introduced in 2004. These were caused primarily by this classification system being based on a structuring of knowledge which was, by 2004, more than 20 years old. The experience of the Department of Education and of higher education institutions was, to an increasing

extent, that proper account could not be taken in this classification system of new developments in, and new ways of organising, various fields of human knowledge.

Because of these problems, the Department of Education decided to set up a project team to review the 1982 classification system, and to invite Higher Education South Africa (HESA) to nominate a group of experts to serve on the team.

The 2007 review of the subject matter classification system

In initial meetings, the project team considered a proposal that the 22 first order categories of the 1982 classification be retained, with adjustments being introduced only at second and third order levels. It soon became evident, however, that the 1982 classifications were too inflexible to accommodate the degree of change that had occurred in subject material over the period since their original design. The project team decided, as a consequence, that the whole of the classification system would have to be reviewed, including the 22 first order categories.

The team decided further that a key principle of the 1982 report would have to be retained. This is that a classification of educational subject matter is not concerned with academic programmes, which are defined in HEMIS as ordered sets of teaching/learning activities which eventually lead to the award of a qualification in one or more major fields of study. The classification system confines itself to the various knowledge components (courses or also sometimes called modules) which appear within an academic programme.

The project team mainly adopted procedures similar to those used in the development of the 1982 classification system. Points which should be highlighted are these:

(1) The classification system is compiled with a view to ensure that all areas of study currently offered at higher education institutions in South Africa are included. The classification system also includes some important areas currently not offered at higher education institutions in South Africa, but may be in the future. CESM 08 and 09, for example, incorporates many of such areas of study.

(2) Subject matter elements are presented in specific hierarchies in order to facilitate data aggregation, recording and reporting. First order designations are intended to be representative of major categories for classifying knowledge. Second order and third order categories are considered to be natural subdivisions of the major subject matter areas. The hierarchy level of a specific area of study should not be seen as a judgement of the relative importance of that area of study in the South African higher education system.

The proposed new classification system has the 20 first order subject matter categories listed in Table 3 which follows. These first order categories are, as with the 1982 classification, broken down into second order categories, and these in turn are broken down into third order categories. No fourth order categories are used in the proposed new system.

An example of the use of these first, second and third order categories can be seen in Table 4, which also follows on the next page.

Table 3

2008 Subject Matter Categories	
01	Agriculture, Agricultural Operations and Related Sciences
02	Architecture and the Built Environment
03	Visual and Performing Arts
04	Business, Economics and Management Studies
05	Communication, Journalism and Related Studies
06	Computer and Information Sciences
07	Education
08	Engineering
09	Health Professions and Related Clinical Sciences
10	Family Ecology and Consumer Sciences
11	Languages, Linguistics and Literature
12	Law
13	Life Sciences
14	Physical Sciences
15	Mathematics and Statistics
16	Military Sciences
17	Philosophy, Religion and Theology
18	Psychology
19	Public Management and Services
20	Social Sciences

Table 4

Example of hierarchical ordering in 2008 classification system		
Order or level	**Code number**	**Description**
First order	01	Agriculture, agricultural operations and related sciences
Second order	0103	Agricultural production operations
	0104	Applied horticulture and horticultural business services
Third order	010302	Aquaculture
	010303	Crop production
	010403	Greenhouse operations and management
	010404	Landscaping and grounds keeping

In line with the 1982 classification system it is important to note that the 2008 classification system is also not intended for use as a framework for the organisation of institutions, faculties, departments and other educational groupings.

In proposing the various classifications which occur in this report, the project team recognises that there can be a number of natural relationships between subject matter categories. Hence, for example, veterinary science, dentistry and clinical medicine have been grouped together because of their joint concern with health sciences. Many areas of study can logically be classified into more than one, usually two, first order CESMs. Examples, with the actual classification codes in brackets, are Knowledge management (061003), Business statistics (041002), Biometrics (131001), Bioinformatics (131003),

Biophysics (130202) and Educational Psychology (1808). Both the emphasis in the specific area of study, as well as the description of the actual students enrolling for courses in these areas of study have determined the final classification.

The team has, during the compilation of this report, taken cognisance of the comments made by HESA, as well as the individual comments of 19 HE institutions, on the first draft of this report. A number of consultations with subject specialists were also undertaken.

PART 1: CODED CLASSIFICATION OF EDUCATION SUBJECT MATTER

CESM 01: AGRICULTURE, AGRICULTURAL OPERATIONS AND RELATED SCIENCES

A broad area of study concerned with the production and management of crops and meat, the breeding of agricultural animals and plants, the development of resources like soil and forests, and the processing of food.

0101 Agricultural Business and Management

010101 Agribusiness/Agricultural Business operations
010102 Agricultural Economics
010103 Wildlife and Other Reserve Management
010104 Agricultural/Farm Supplies Retailing and Wholesaling
010105 Agricultural Business Technology
010106 Agricultural Extension
010199 Agricultural Business and Management, Other

0102 Agricultural Mechanisation

010201 Agricultural Mechanisation
010202 Agricultural Mechanics and Equipment/Machine Technology
010299 Agricultural Mechanisation, Other

0103 Agricultural Production Operations

010301 Animal/Livestock Husbandry and Production
010302 Aquaculture
010303 Crop Production
010304 Dairy Husbandry and Production
010305 Fishing and Fisheries Sciences and Management
010306 Horse Husbandry/Equine Science and Management
010399 Agricultural Production Operations, Other

0104 Applied Horticulture and Horticultural Business Services

010401 Applied Horticulture/Horticultural Operations, General
010402 Ornamental Horticulture
010403 Greenhouse Operations and Management
010404 Landscaping and Grounds Keeping
010405 Plant Nursery Operations and Management
010406 Turf and Turf Grass Management
010407 Floriculture/Floristry Operations and Management
010499 Applied Horticulture and Horticultural Business Services, Other

0105 International Agriculture

010501 International Agriculture

0106 Animal Sciences

010601 Animal Sciences, General
010602 Agricultural Animal Breeding
010603 Animal Health
010604 Animal Nutrition
010605 Dairy Science

010606 Livestock Management
010607 Poultry Science
010699 Animal Sciences, Other

0107 Food Science and Technology

010701 Food Science
010702 Food Technology and Processing
010703 Oenology and Wine Biotechnology
010799 Food Science and Technology, Other

0108 Plant Sciences

010801 Plant Sciences, General
010802 Agronomy and Crop Science
010803 Horticultural Science
010804 Agricultural and Horticultural Plant Breeding
010805 Plant Protection and Integrated Pest Management
010806 Range Science and Management
010807 Viticulture and Grapevine Biotechnology
010899 Plant Sciences, Other

0109 Soil Sciences

010901 Soil Science and Agronomy, General
010902 Soil Chemistry and Physics
010903 Soil Microbiology
010999 Soil Sciences, Other

0110 Forestry and Wood Sciences

011001 Wood and Wood Product Sciences
011002 Forestry Sciences
011099 Forestry and wood Sciences, Other

0199 Agriculture, Agricultural Operations and Related Sciences, Other

CESM 02: ARCHITECTURE AND THE BUILT ENVIRONMENT

A broad field of study focusing on various aspects of architecture-related fields, including the application of the principles of planning and analysis to the development and improvement of urban areas, the design of different types of spaces for leisure and living purposes, and the aesthetic and socioeconomic aspects of the built environment.

0201 Architecture, General

020101 Architecture, General

0202 City/Urban, Community and Regional Planning

020201 City/Urban, Community and Regional Planning

0203 Building/Construction Site Management

020301 Building/Construction Site Management

020302 Construction Management
020399 Building/Construction Site Management, Other

0204 Environmental Design/Architecture

020401 Environmental Design/Architecture

0205 Interior Architecture and Design

020501 Interior Architecture and Design

0206 Landscape Architecture

020601 Landscape Architecture

0207 Architectural History and Criticism

020701 Architectural History and Criticism

0208 Architectural and Built Environment Technology

020801 Architectural and Built Environment Technology

0209 Quantity Surveying

020901 Quantity Surveying

0299 Architecture and the Built Environment, Other

CESM 03: VISUAL AND PERFORMING ARTS

A broad field of study which focuses on the creation and interpretation of works and performances that use auditory, kinaesthetic, and visual phenomena to express ideas and emotions in various forms, subject to aesthetic criteria.

0301 Dance

030101 Dance, General

0302 Design and Applied Arts

030201 Design and Visual Communications, General
030202 Commercial and Advertising Art
030203 Industrial Design
030204 Commercial Photography
030205 Fashion/Apparel Design
030206 Interior Design
030207 Graphic Design
030208 Illustration
030299 Design and Applied Arts, Other

0303 Drama/Theatre Arts

030301 Drama, Theatre and Performance, General
030302 Theatre Design and Technology
030303 Playwriting and Screenwriting
030304 Theatre Literature, History and Criticism
030305 Acting

030306 Directing and Production for the Theatre
030307 Performing Arts Management
030399 Drama/Theatre Arts, Other

0304 Film/Video and Photographic Arts

030401 Film/Cinema Studies
030402 Photography
030499 Film/Video and Photographic Arts, Other

0305 Fine and Studio Art

030501 Art/Art Studies, General
030502 Fine/Studio Arts, General
030503 Art History, Criticism and Conservation
030504 Arts Management
030505 Drawing
030506 Intermedia/Multimedia
030507 Painting
030508 Sculpture
030509 Printmaking
030510 Ceramic Arts and Ceramics
030511 Fibre, Textile and Weaving Arts
030512 Metal and Jewellery Arts
030599 Fine and Studio Art, Other

0306 Music

030601 Music, General
030602 Music History and Literature
030603 Music Performance, General
030604 Music Theory, Composition and Analysis
030605 Musicology and Ethnomusicology
030606 Conducting
030607 Piano and Related Instruments
030608 Voice and Opera
030609 Music Management and Merchandising
030610 Jazz/Jazz Studies
030611 Violin, Viola, Guitar and Other Stringed Instruments
030612 Wind Instruments
030613 Music Pedagogy
030699 Music, Other

0399 Visual and Performing Arts, Other

CESM 04: BUSINESS, ECONOMICS AND MANAGEMENT STUDIES

A broad field of study concerned with the theory and practice of the planning, managing, marketing and appraisal of small and large business enterprises; the systematic study of production, conservation and allocation of financial and human resources, as well as the preparation of individuals for administration and management in the hospitality and tourism industry.

0401 Business Administration, Management and Operations

040101 Business Administration and Management, General
040102 Purchasing, Procurement/Acquisitions and Contracts Management
040103 Logistics and Materials Management
040104 Office Management and Supervision
040105 Operations Management and Supervision
040106 Non-Profit/Public/Organisational Management
040107 Customer Service Management
040108 E-Commerce
040109 Transportation/Transportation Management
040110 Project Management
040199 Business Administration, Management and Operations, Other

0402 Accounting and Related Services

040201 Accounting
040202 Auditing
040203 Accounting and Finance
040299 Accounting and Related Services, Other

0403 Business/Corporate Communications

040301 Business/Corporate Communications

0404 Economics

040401 Economics, General
040402 Applied Economics
040403 Managerial Economics
040404 Econometrics and Quantitative Economics
040405 Development Economics and International Development
040406 International Economics
040407 Natural Resource Economics
040499 Economics, Other

0405 Entrepreneurial and Small Business Operations

040501 Entrepreneurial/Entrepreneurial Studies
040502 Franchising and Franchise Operations
040503 Small Business Administration/Management
040599 Entrepreneurial and Small Business Operations, Other

0406 Finance and Financial Management Services

040601 Finance, General
040602 Banking and Financial Support Systems
040603 Financial Planning and Services

040604 International Finance
040605 Investments and Securities
040606 Public Finance
040607 Credit Management
040699 Finance and Financial Management Services, Other

0407 Hospitality Administration/Management

040701 Hospitality Administration/Management, General
040702 Tourism and Travel Services Management
040703 Hotel/Motel Administration/Management
040704 Restaurant/Food Services Management
040799 Hospitality Administration/Management, Other

0408 Human Resource Management and Services

040801 Human Resource Management/Personnel Administration
040802 Labour and Industrial Relations
040803 Organisational Behaviour Studies
040804 Labour Studies
040805 Human Resource Development
040899 Human Resource Management and Services, Other

0409 International Business

040901 International Business

0410 Management Sciences and Quantitative Methods

041001 Management Science, General
041002 Business Statistics
041003 Actuarial Science
041099 Management Sciences and Quantitative Methods, Other

0411 Marketing

041101 Marketing/Marketing Management, General
041102 Marketing Research
041103 International Marketing
041199 Marketing, Other

0412 Real Estate

041201 Real Estate

0413 Taxation

041301 Taxation

0414 Insurance

041401 Insurance

0415 General Sales, Merchandising and Related Marketing Operations

041501 Sales, Distribution and Marketing Operations, General
041502 Merchandising and Buying Operations
041503 Retailing and Retail Operations
041504 Selling Skills and Sales Operations
041599 General Sales, Merchandising and Related Marketing Operations, Other

0416 Specialised Sales, Merchandising and Marketing Operations

041601 Auctioneering
041602 Fashion Merchandising
041603 Apparel and Accessories Marketing Operations
041604 Tourism and Travel Services Marketing Operations
041605 Tourism Promotion Operations
041606 Vehicle and Vehicle Parts and Accessories Marketing Operations
041607 Business and Personal/Financial Services Marketing Operations
041608 Special Products Marketing Operations
041609 Hospitality and Recreation Marketing Operations
041699 Specialised Sales, Merchandising and Marketing Operations, Other

0417 Parks, Recreation and Leisure Facilities Management

041701 Parks, Recreation and Leisure Facilities Management
041702 Sport and Fitness Administration and Management
041799 Parks, Recreation and Leisure Facilities Management, Other

0499 Business, Economics and Management Studies, Other

CESM 05: COMMUNICATION, JOURNALISM AND RELATED STUDIES

A broad area of study which focuses on how news and reports in various media are produced, used and interpreted within and across different contexts, channels and cultures, as well as on the effective application of communication knowledge and skills.

0501 Communication and Media Studies

050101 Communication Studies/Speech Communication and Rhetoric
050102 Mass Communication/Media Studies
050199 Communication and Media Studies, Other

0502 Journalism

050201 Print Journalism
050202 Broadcast Journalism
050203 Photojournalism
050204 New Media
050299 Journalism, Other

0503 Radio, Television and Digital Communication

050301 Radio and Television
050302 Digital Communication and Media/Multimedia
050399 Radio, Television and Digital Communication, Other

0504 Public Relations, Advertising and Applied Communication

050401 Organisational Communication, General
050402 Public Relations/Image Management
050403 Advertising
050404 Political Communication

050405 Health Communication
050499 Public Relations, Advertising and Applied Communication, Other

0505 Publishing

050501 Publishing

0599 Communication, Journalism and Related Studies, Other

CESM 06: COMPUTER AND INFORMATION SCIENCES

A broad area of study concerned with all facets of electronic computing, including computer systems, computer networks and computer software, as well as the classification, storage, processing and dissemination of information.

0601 Computer and Information Sciences

060101 Computer and Information Sciences, General
060102 Artificial Intelligence and Robotics
060103 Information Technology
060199 Computer and Information Sciences, Other

0602 Computer Programming

060201 Computer Programming, General
060202 Computer Programming, Specific Applications
060299 Computer Programming, Other

0603 Data Processing and Information Science

060301 Data Processing and Data Processing Technology
060302 Information Science
060399 Data Processing and Information Science, Other

0604 Computer Business Systems Analysis

060401 Computer Business Systems Analysis

0605 Data Entry/Microcomputer Applications

060501 Data Entry/Microcomputer Applications, General
060502 Word Processing
060599 Data Entry/Microcomputer Applications, Other

0606 Computer Science

060601 Computer Science

0607 Computer Software and Media Applications

060701 Web Page, Digital/Multimedia and Information Resources Design
060702 Data Modelling/Warehousing and Database Administration
060703 Computer Graphics
060699 Computer Software and Media Applications, Other

0608 Computer Systems Networking and Telecommunications

060801 Computer Systems Networking and Telecommunications

0609 Computer/Information Technology Administration and Management

060901 Systems Administration
060902 Systems, Networking and LAN/WAN Management
060903 Computer and Information Systems Security
060904 Web/Multimedia Management
060999 Computer/ Information Technology Administration and Management, Other

0610 Management Information Systems and Services

061001 Management Information Systems, General
061002 Information Resources Management
061003 Knowledge Management
061099 Management Information Systems and Services, Other

0699 Computer and Information Sciences, Other

CESM 07: EDUCATION

A broad area of study concerned with the science and practice of educating the population.

0701 Education, General

070101 Education, General
070102 Academic Literacy
070199 Education, General: Other

0702 Curriculum and Instruction

070201 Curriculum and Instruction

0703 Educational Management and Leadership

070301 Educational Leadership and Management, General
070302 Management of Special Education
070303 Adult Education and Training Management
070304 Educational, Instructional and Curriculum Supervision
070305 Higher Education/Higher Education Management
070306 Early Childhood Development and Primary School Management
070307 Secondary School Management
070308 Middle Management and Educational System Administration
070399 Educational Management and Leadership, Other

0704 Educational/Instructional Media Design

070401 Educational/Instructional Media Design

0705 Educational Assessment, Evaluation and Research

070501 Educational Evaluation and Research
070502 Educational Statistics and Research Methods
070503 Educational Assessment, Testing and Measurement
070599 Educational Assessment, Evaluation and Research, Other

0706 International and Comparative Education

070601 International and Comparative Education

0707 Social and Philosophical Foundations of Education

070701 Social and Philosophical Foundations of Education

0708 Special Needs Education

070801 Special Needs Education, General
070802 Education/Teaching of Individuals with Hearing Impairments/Deafness
070803 Education/Teaching of the Gifted and Talented
070804 Education/Teaching of Individuals with Emotional Disturbances
070805 Education/Teaching of Individuals with Mental Disabilities
070806 Education/Teaching of Individuals with Multiple Disabilities
070807 Education/Teaching of Individuals with Physical Health Impairments
070808 Education/Teaching of Individuals with Vision Impairments (including Blindness)
070809 Education/Teaching of Individuals with Specific Learning Disabilities
070810 Education/Teaching of Individuals with Speech or Language Impairments
070811 Education/Teaching of Individuals with Autism
070899 Special Needs Education, Other

0709 Counsellor Education and Guidance Services

070901 Counsellor Education and Guidance Services, General

0710 Teaching Education and Professional Development, Specific Levels and Methods

071001 Adult Education and Training
071002 Early Childhood Development and General Education and Training
071003 Further Education and Training
071004 Teacher Education: Multiple Levels
071099 Teacher Education and Professional Development, Specific Levels and Methods, Other

0711 Teacher Education and Professional Development, Specific Subject Areas, Early Childhood Development (ECD) and General Education and Training (GET)

071101 Languages: Afrikaans (Grades R-9) – ECD and GET
071102 Languages: English (Grades R-9) – ECD and GET
071103 Languages: IsiNdebele (Grades R-9) – ECD and GET
071104 Languages: IsiXhosa (Grades R-9) – ECD and GET
071105 Languages: IsiZulu (Grades R-9) – ECD and GET
071106 Languages: Sepedi (Grades R-9) – ECD and GET
071107 Languages: Sesotho (Grades R-9) – ECD and GET
071108 Languages: Setswana (Grades R-9) – ECD and GET
071109 Languages: Siswati (Grades R-9) – ECD and GET
071110 Languages: Tshivenda (Grades R-9) – ECD and GET
071111 Languages: Xitsonga (Grades R-9) – ECD and GET
071112 Mathematics – ECD and GET
071113 Natural Sciences – ECD and GET
071114 Social Sciences – ECD and GET
071115 Arts and Culture – ECD and GET
071116 Life Orientation – ECD and GET
071117 Economic and Management Sciences – ECD and GET
071118 Physical Education – ECD and GET
071119 Technology – ECD AND GET

071199 Teacher Education and Professional Development, Specific Subject Areas, Early Childhood Development and General Education and Training, Other

0712 Teacher Education and Professional Development, Specific Subject Areas, Further Education and Training (FET)

071201 FET: Accounting
071202 FET: Agricultural Management Practices
071203 FET: Agricultural Sciences
071204 FET: Agricultural Technology
071205 FET: Business Sciences
071206 FET: Civil Technology
071207 FET: Computer Applications Technology
071208 FET: Consumer Studies
071209 FET: Dance Studies
071210 FET: Design
071211 FET: Dramatic Arts
071212 FET: Economics
071213 FET: Electrical Technology
071214 FET: Engineering Graphics and Design
071215 FET: Geography
071216 FET: History
071217 FET: Hospitality Studies
071218 FET: Information Technology
071219 FET: Languages: Afrikaans
071220 FET: Languages: English
071221 FET: Languages: IsiNdebele
071222 FET: Languages: IsiXhosa
071223 FET: Languages: IsiZulu
071224 FET: Languages: Sepedi
071225 FET: Languages: Sesotho
071226 FET: Languages: Setswana
071227 FET: Languages: Siswati
071228 FET: Languages: Tshivenda
071229 FET: Languages: Xitsonga
071230 FET: Life Orientation
071231 FET: Life Sciences
071232 FET: Mathematical Literacy
071233 FET: Mathematics
071234 FET: Mechanical Technology
071235 FET: Music
071236 FET: Physical Science
071237 FET: Religious Studies
071238 FET: Tourism
071239 FET: Visual Arts
071240 FET: Physical Education
071299 Teacher Education and Professional Development, Specific Subject Areas, Further Education and Training, Other

0799 Education, Other

CESM 08: ENGINEERING

A broad area of study concerned with the application of mathematical and scientific principles to the solution of practical problems.

0801 Aerospace, Aeronautical and Astronautical Engineering

080101 Aerospace, Aeronautical and Astronautical Engineering

0802 Agricultural/Biological Engineering and Bio-engineering

080201 Agricultural/Biological Engineering and Bio-engineering

0803 Architectural Engineering

080301 Architectural Engineering

0804 Biomedical/Medical Engineering

080401 Biomedical/Medical Engineering

0805 Ceramic Sciences and Engineering

080501 Ceramic Sciences and Engineering

0806 Chemical Engineering

080601 Chemical Engineering

0807 Civil Engineering

080701 Civil Engineering, General
080702 Geotechnical Engineering
080703 Structural Engineering
080704 Transportation and Highway Engineering
080705 Water Resources Engineering
080799 Civil Engineering, Other

0808 Computer Engineering

080801 Computer Engineering, General
080802 Computer Hardware Engineering
080803 Computer Software Engineering
080899 Computer Engineering, Other

0809 Electrical, Electronics and Communications Engineering

080901 Electrical, Electronics and Communications Engineering

0810 Engineering Mechanics

081001 Engineering Mechanics

0811 Engineering Physics

081101 Engineering Physics

0812 Engineering Science

081201 Engineering Science

0813 Environmental/Environmental Health Engineering

081301 Environmental/Environmental Health Engineering

0814 Materials Engineering

081401 Materials Engineering

0815 Mechanical and Mechatronic Engineering

081501 Mechanical Engineering
081502 Mechatronic Engineering
081599 Mechanical and Mechatronic Engineering, Other

0816 Metallurgical Engineering

081601 Metallurgical Engineering

0817 Mining and Mineral Engineering

081701 Mining and Mineral Engineering

0818 Naval Architecture and Marine Engineering

081801 Naval Architecture and Marine Engineering

0819 Nuclear Engineering

081901 Nuclear Engineering

0820 Ocean Engineering

082001 Ocean Engineering

0821 Petroleum Engineering

082101 Petroleum Engineering

0822 Systems Engineering

082201 Systems Engineering

0823 Textile Sciences and Engineering

082301 Textile Sciences and Engineering

0824 Materials Science

082401 Materials Science

0825 Polymer/Plastics Engineering

082501 Polymer/Plastics Engineering

0826 Construction Engineering

082601 Construction Engineering

0827 Forest Engineering

082701 Forest Engineering

0828 Industrial Engineering

082801 Industrial Engineering

0829 Manufacturing Engineering

082901 Manufacturing Engineering

0830 Operations Research

083001 Operations Research

0831 Surveying Engineering

083101 Surveying Engineering

0832 Geological/Geophysical Engineering

083201 Geological/Geophysical Engineering

0899 Engineering, Other

CESM 09: HEALTH PROFESSIONS AND RELATED CLINICAL SCIENCES

A broad area of study which prepares individuals to practice as professionals, technicians/technologists and assistants in the health care professions and also focuses on the study of related clinical sciences.

0901 Chiropractic

090101 Chiropractic

0902 Communications Disorders Sciences and Services

090201 Communication Disorders, General
090202 Audiology and Hearing Sciences
090203 Speech-Language Pathology
090204 Audiology and Speech-Language Pathology
090299 Communications Disorders Sciences and Services, Other

0903 Dentistry, Advanced Dentistry and Oral Sciences

090301 Dentistry
090302 Dental Clinical Sciences, General
090303 Advanced General Dentistry
090304 Oral Biology and Oral Pathology
090305 Dental Public Health and Education
090306 Dental Materials
090307 Endodontics/Endodontology
090308 Oral/Maxillofacial Surgery
090309 Orthodontics/Orthodontology
090310 Paediatric Dentistry/Paedodontics
090311 Periodontics/Periodontology
090312 Prosthodontics/Prosthodontology
090399 Dentistry, Advanced Dentistry and Oral Sciences, Other

0904 Dental Support Services and Allied Professions

090401 Dental Assisting
090402 Dental Hygiene

090403 Dental Laboratory Technology
090499 Dental Services and Allied Professions, Other

0905 Health and Medical Administrative Services

090501 Health Care Administration/Management
090502 Hospital and Health Care Facilities Administration/Management
090599 Health and Medical Administrative Services, Other

0906 Medicine

090601 Medicine

0907 Medical Clinical Sciences

090701 Aerospace Medicine
090702 Allergies and Immunology
090703 Anaesthesiology
090704 Cardiology
090705 Paediatric Cardiology
090706 Chemical Pathology
090707 Neurology
090708 Paediatric Neurology
090709 Psychiatry
090710 Child Psychiatry
090711 Colon and Rectal Surgery
090712 Critical Care Anaesthesiology
090713 Critical Care Medicine
090714 Critical Care Surgery
090715 Dermatology
090716 Dermatopathology
090717 Diagnostic Radiology
090718 Emergency Medicine
090719 Endocrinology and Metabolism
090720 Family Medicine
090721 Forensic Pathology
090722 Gastroenterology
090723 General Surgery
090724 Hand Surgery
090725 Paediatric Surgery
090726 Geriatric Medicine
090727 Haematology
090728 Haematological Pathology
090729 Immunopathology
090730 Infectious Diseases
090731 Internal Medicine
090732 Laboratory Medicine
090733 Musculoskeletal Oncology
090734 Neonatal-Perinatal Medicine
090735 Nephrology
090736 Neurological Surgery/Neurosurgery
090737 Neurology
090738 Neuropathology
090739 Nuclear Medicine
090740 Nuclear Radiology
090741 Obstetrics and Gynaecology
090742 Occupational Medicine
090743 Oncology
090744 Ophthalmology

090745 Orthopaedics/Orthopaedic Surgery
090746 Otolaryngology
090747 Pathology
090748 Paediatric Endocrinology
090749 Paediatric Haemato-Oncology
090750 Paediatric Nephrology
090751 Paediatric Orthopaedics
090752 Paediatrics
090753 Physical and Rehabilitation Medicine
090754 Plastic Surgery
090755 Preventive Medicine
090756 Public Health Medicine
090757 Pulmonary Disease
090758 Radiation Oncology
090759 Radio Isotopic Pathology
090760 Rheumatology
090761 Sports Medicine
090762 Thoracic Surgery
090763 Urology
090764 Vascular Surgery
090765 Adult Reconstructive Orthopaedics
090766 Cytopathology
090767 Geriatric Medicine (Internal Medicine)
090768 Paediatric Urology
090769 Orthopaedic Surgery of the Spine
090770 Palliative Medicine
090771 Genetic Counselling
090799 Medical Clinical Sciences, Other

0908 Nursing

090801 Nursing, General
090802 Nursing Administration
090803 Adult Health Nursing
090804 Nurse Anaesthetist
090805 Neonatal Nursing and Midwifery
090806 Nursing Science
090807 Paediatric Nursing
090808 Psychiatric Nursing
090809 Public Health/Community Nursing
090810 Preoperative/Operating Room and Surgical Nursing
090811 Clinical Nurse Specialist Training
090812 Critical Care Nursing
090813 Occupational and Environmental Health Nursing
090814 Geriatric Nursing
090899 Nursing, Other

0909 Optometry

090901 Optometry

0910 Osteopathic Medicine/Osteopathy

091001 Osteopathic Medicine/Osteopathy

0911 Pharmacy, Pharmaceutical Sciences and Administration

091101 Pharmacy and Community Pharmacy, General
091102 Pharmacy Administration and Pharmacy Policy

091103 Pharmaceutics
091104 Medicinal and Pharmaceutical Chemistry and Drug Design
091105 Natural Products Chemistry and Pharmacognosy
091106 Clinical and Industrial Drug Development
091107 Pharmacoeconomics/Pharmaceutical Economics
091108 Clinical, Hospital and Managed Care Pharmacy
091109 Industrial and Physical Pharmacy and Cosmetic Science
091199 Pharmacy, Pharmaceutical Sciences and Administration, Other

0912 Podiatric Medicine/Podiatry

091201 Podiatric Medicine/Podiatry

0913 Public Health

091301 Public Health, General
091302 Environmental Health
091303 Health/Medical Physics
091304 Occupational Health and Industrial Hygiene
091305 Public Health Education and Promotion
091306 Community Health and Preventive Medicine
091307 Maternal and Child Health
091308 International Public Health/International Health
091309 Health Services Administration
091399 Public Health, Other

0914 Rehabilitation and Therapeutic Professions

091401 Art Therapy
091402 Dance Therapy
091403 Music Therapy
091404 Occupational Therapy
091405 Orthotist/Prosthetist Training
091406 Physiotherapy
091407 Adapted Physical Activity
091408 Vocational Rehabilitation Counselling
091409 Biokinetics/Kinesiotherapy
091410 Assistive/Augmentative Technology and Rehabilitation Engineering
091499 Rehabilitation and Therapeutic Professions, Other

0915 Veterinary Medicine

091501 Veterinary Medicine
091502 Veterinary Nursing
091599 Veterinary Medicine, Other

0916 Veterinary Biomedical and Clinical Sciences

091601 Veterinary Sciences/Veterinary Clinical Sciences, General
091602 Veterinary Anatomy
091603 Veterinary Anaesthesiology
091604 Veterinary Dentistry
091605 Veterinary Dermatology
091606 Veterinary Emergency and Critical Care Medicine
091607 Veterinary Internal Medicine
091608 Veterinary Microbiology and Immunology
091609 Veterinary Nutrition
091610 Veterinary Ophthalmology
091611 Veterinary Pathology
091612 Veterinary Pathology and Pathobiology

091613 Veterinary Physiology
091614 Veterinary Preventative Medicine
091615 Veterinary Radiology
091616 Theriogenology
091617 Veterinary Toxicology and Pharmacology
091618 Large Animal/Food Animal and Equine Surgery and Medicine
091619 Small/Companion Animal Surgery and Meds
091620 Comparative and Laboratory Animal Meds
091621 Veterinary Preventive Medicine Epidemiology and Public Health
091622 Veterinary Infectious Diseases
091699 Veterinary Biomedical and Clinical Sciences, Other

0917 Medical Illustration and Informatics

091701 Medical Illustration
091702 Medical Informatics
091799 Medical Illustration and Informatics, Other

0918 Dietetics and Clinical Nutrition Services

091801 Dietetics
091802 Clinical Nutrition
091899 Dietetics and Clinical Nutrition Services, Other

0919 Bioethics/Medical Ethics

091901 Bioethics/Medical Ethics

0920 Alternative and Complementary Medicine and Medical Systems

092001 Acupuncture
092002 Naturopathic Medicine
092003 Homeopathic Medicine
092099 Alternative and Complementary Medicine and Medical Systems, Other

0921 Somatic Bodywork and Related Therapeutic Services

092101 Massage Therapy
092102 Somatic Bodywork Therapy
092199 Somatic Bodywork and Related Therapeutic Services, Other

0922 Movement and Mind-Body Therapies and Education

092201 Movement Therapy and Education
092202 Yoga Therapy
092299 Movement and Mind-Body Therapies and Education, Other

0923 Energy and Biologically Based Therapies

092301 Aromatherapy
092302 Herbalism
092399 Energy and Biologically Based Therapies, Other

0924 Medical Radiologic Technology/Science (Radiography)

092401 Medical Radiologic Technology/Science (Radiography)

0999 Health Professions and Related Clinical Sciences, Other

CESM 10: FAMILY ECOLOGY AND CONSUMER SCIENCES

A broad area of study that focuses on family systems and consumer sciences, including how individuals develop and function in family, work, and community settings, as well as on housing, human nutrition, apparel and textiles, and the human interface with the physical, social, emotional, and intellectual environments.

1001 Family and Consumer Sciences

100101 Family and Consumer Sciences, General
100102 Business Family and Consumer Sciences/Human Sciences
100103 Family and Consumer Sciences Communication
100104 Consumer Merchandising/Retailing Management
100205 Consumer Psychology
100199 Family and Consumer Sciences, Other

1002 Family and Consumer Economics and Related Studies

100201 Family Resource Management Studies, General
100202 Consumer Economics
100203 Consumer Services and Advocacy
100299 Family and Consumer Economics and Related Services, Other

1003 Foods, Nutrition and Related Services

100301 Foods, Nutrition and Wellness Studies, General
100302 Human Nutrition
100303 Food Service Systems Administration/Management
100399 Foods, Nutrition and Related Services, Other

1004 Housing and Human Environments

100401 Housing and Human Environments, General

1005 Human Development, Family Studies and Related Services

100501 Human Development and Family Studies, General
100502 Adult Development and Ageing
100503 Family Systems
100504 Child Development
100505 Family and Community Services
100599 Human Development, Family Studies and Related Services, Other

1006 Apparel and Textiles

100601 Apparel and Textiles, General
100602 Apparel and Textile Manufacture
100603 Apparel and Textile Marketing Management
100604 Fashion and Fabric Consultation
100699 Apparel and Textiles, Other

1099 Family Ecology and Consumer Sciences, Other

CESM 11: LANGUAGES, LINGUISTICS AND LITERATURE

A broad area of study concerned with the structures and use in speech, writing and various other aspects of the literatures of the official languages of South Africa, as well as areas of study relating to other important languages, inter alia other African languages, Asian languages, European languages, Classical languages and South African sign language.

1101 Linguistic, Comparative and Related Language Studies and Practices

110101 Linguistics
110102 Comparative Literature
110103 Speech and Rhetorical Studies
110104 Language Practice
110199 Linguistics, Comparative and Related Language Studies and Practices, Other

1102 English Language and Literature

110201 English Language and Literature, General
110202 English Composition
110203 English Creative Writing
110204 English Literature
110205 Technical and Business Writing in the English Language
110299 English Language and Literature, Other

1103 Afrikaans Language and Literature

110301 Afrikaans Language and Literature, General
110302 Afrikaans Composition
110303 Afrikaans Creative Writing
110304 Afrikaans Literature
110305 Technical and Business Writing in Afrikaans
110399 Afrikaans Language and Literature, Other

1104 IsiNdebele Language and Literature

110401 IsiNdebele Language and Literature, General
110402 IsiNdebele Composition
110403 IsiNdebele Creative Writing
110404 IsiNdebele Literature
110405 Technical and Business Writing in IsiNdebele
110499 IsiNdebele Language and Literature, Other

1105 Sepedi Language and Literature

110501 Sepedi Language and Literature, General
110502 Sepedi Composition
110503 Sepedi Creative Writing
110504 Sepedi Literature
110505 Technical and Business Writing in Sepedi
110599 Sepedi Language and Literature, Other

1106 SeSotho Language and Literature

110601 SeSotho Language and Literature, General

110602 SeSotho Composition
110603 SeSotho Creative Writing
110604 SeSotho Literature
110605 Technical and Business Writing in SeSotho
110699 SeSotho Language and Literature, Other

1107 Siswati Language and Literature

110701 Siswati Language and Literature, General
110702 Siswati Composition
110703 Siswati Creative Writing
110704 Siswati Literature
110705 Technical and Business Writing in Siswati
110799 Siswati Language and Literature, Other

1108 Xitsonga Language and Literature

110801 Xitsonga Language and Literature, General
110802 Xitsonga Composition
110803 Xitsonga Creative Writing
110804 Xitsonga Literature
110805 Technical and Business Writing in Xitsonga
110899 Xitsonga Language and Literature, Other

1109 Setswana Language and Literature

110901 Setswana Language and Literature, General
110902 Setswana Composition
110903 Setswana Creative Writing
110904 Setswana Literature
110905 Technical and Business Writing in Setswana
110999 Setswana Language and Literature, Other

1110 Tshivenda Language and Literature

111001 Tshivenda Language and Literature, General
111002 Tshivenda Composition
111003 Tshivenda Creative Writing
111004 Tshivenda Literature
111005 Technical and Business Writing in Tshivenda
111099 Tshivenda Language and Literature, Other

1111 IsiXhosa Language and Literature

111101 IsiXhosa Language and Literature, General
111102 IsiXhosa Composition
111103 IsiXhosa Creative Writing
111104 IsiXhosa Literature
111105 Technical and Business Writing in IsiXhosa
111199 IsiXhosa Language and Literature, Other

1112 IsiZulu Language and Literature

111201 IsiZulu Language and Literature, General
111202 IsiZulu Composition
111203 IsiZulu Creative Writing
111204 IsiZulu Literature
111205 Technical and Business Writing in IsiZulu
111299 IsiZulu Language and Literature, Other

1113 Other African Languages and Literature

111301 Other African Languages and Literature

1114 Dutch Language and Literature

111401 Dutch Language and Literature

1115 European Languages and Literature (excluding Dutch)

111501 European Languages and Literature (excluding Dutch)

1116 Asian Languages and Literature

111601 Asian Languages and Literature

1117 Middle/Near Eastern and Semitic Languages and Literature

111701 Semitic Languages and Literature
111702 Arabic Language and Literature
111703 Ancient Near Eastern and Biblical Languages and Literatures
111799 Middle/Near Eastern and Semitic Languages and Literature, Other

1118 Classics and Classical Languages and Literature

111801 Classics and Classical Languages and Literature

1119 South African Sign Language (SASL)

111901 South African Sign Language (SASL)

1120 Comparative African Languages and Literatures

112001 Comparative African Languages and Literatures

1199 Languages, Linguistics and Literature, Other

CESM 12: LAW

A field of study concerned with identifying and elaborating the principles and procedures laid down by legislation, the common law and judicial precedent and enforced by institutions of government with a view to the preservation of the social order.

1201 International Apects of Law

120101 International Aspects of Law
120102 Comparative Law
120103 Foreign Legal Systems
120104 Private International Law
120105 Public International Law
120106 International Trade Law

120107 International Human Rights Law
120108 International Humanitarian Law
120109 International Criminal Law (ICL)
120199 International Aspects of Law, Other

1202 Perspectives on Law

120201 Perspectives on Law
120202 Legal History
120203 Introduction to the Theory of Law
120204 Jurisprudence
120205 Roman Law
120206 Indigenous African Law and Legal Pluralism
120207 Religious Legal Systems
120299 Perspectives on Law, Other

1203 Mercantile Law

120301 Mercantile Law, General
120302 The Law of Associations
120303 Corporate Law
120304 Law of Partnerships
120305 Law of Financial Institutions
120306 Law of Payment Instruments
120307 Intellectual Property Law
120308 Law of Competition
120309 Law of Insolvency
120310 Law of Insurance
120311 Labour Law
120312 Tax Law
120313 Shipping Law
120314 Law of Carriage
120315 Commercial Financing Law
120316 Tourism Law
120317 Law of Consumer Protection
120318 Electronic Information and Communication Law
120399 Mercantile Law, Other

1204 Private Law

120401 Private Law, General
120402 Law of Obligations
120403 Law of Contract
120404 Law Relating to Specific Contracts
120405 Law of Delict
120406 Law Concerning other Obligations
120407 Family Law
120408 Law of Persons
120409 Law of Succession
120410 The Law of Trusts
120411 The Law of Property
120412 Water Law
120413 The Law of Mines and Minerals
120414 The Law of Estoppel
120415 The Law of Damages
120499 Private Law, Other

1205 Public Law

120501 Public Law, General
120502 Administrative Law
120503 Constitutional Law
120504 Human Rights Law
120505 Local Government Law
120506 Criminal Law
120507 Interpretation of Statutes
120508 Medical Law
120509 Media Law
120510 Environmental Law
120511 Education Law
120599 Public Law, Other

1206 Formal Law

120601 Formal Law, General
120602 Law of Alternative Dispute Resolution
120603 Law of Civil Procedure
120604 Law of Criminal Procedure
120605 Law of Evidence
120699 Formal Law, Other

1207 Legal Profession

120701 Legal Profession, General
120702 Conveyancing
120703 Notarial Practice
120704 Legal Aid
120705 Legal Ethics
120706 Legal Techniques and Research
120707 Legal Costs
120708 Estate Planning
120709 Administration of Estates
120799 Legal Profession, Other

1299 Law, Other

CESM 13: LIFE SCIENCES

A broad area of study which focuses on the biological sciences and the non-clinical biomedical sciences.

1301 Biology, General

130101 Biology/Biological Sciences, General

1302 Biochemistry, Biophysics and Molecular Biochemistry

130201 Biochemistry
130202 Biophysics
130203 Molecular Biology
130204 Molecular Biochemistry
130205 Molecular Biophysics

130206 Structural Biology
130207 Photobiology
130208 Radiation Biology/Radiobiology
130299 Biochemistry, Biophysics and Molecular Biochemistry, Other

1303 Botany/Plant Biology

130301 Botany/Plant Biology, General
130302 Plant Pathology/Phytopathology
130303 Plant Physiology
130304 Plant Molecular Biology
130399 Biology/Plant Biology, Other

1304 Cell/Cellular Biology and Anatomical Sciences

130401 Cell/Cellular Biology and Histology
130402 Anatomy
130403 Developmental Biology and Embryology
130404 Neuroanatomy
130405 Cell/Cellular Biology and Anatomy
130499 Cell/Cellular Biology and Anatomical Sciences, Other

1305 Microbiological Sciences and Immunology

130501 Microbiology, General
130502 Medical Microbiology and Bacteriology
130503 Virology
130504 Parasitology
130505 Mycology
130506 Immunology
130599 Microbiological Sciences and Immunology, Other

1306 Zoology/Animal Biology

130601 Zoology/Animal Biology, General
130602 Entomology
130603 Animal Physiology
130604 Animal Behaviour and Ethology
130605 Wildlife Biology
130699 Zoology/Animal Biology, Other

1307 Genetics

130701 Genetics, General
130702 Molecular Genetics
130703 Microbial and Eukaryotic Genetics
130704 Animal Genetics
130705 Plant Genetics
130706 Human/Medical Genetics
130799 Genetics, Other

1308 Physiology, Pathology and Related Sciences

130801 Physiology, General
130802 Molecular Physiology
130803 Cell Physiology
130804 Endocrinology
130805 Reproductive Biology
130806 Neurobiology and Neurophysiology
130807 Cardiovascular Science

130808 Exercise Physiology
130809 Vision Science/Physiological Optics
130810 Pathology/Experimental Pathology
130811 Oncology and Cancer Biology
130812 Sport and Exercise Sciences/Kinesiology
130899 Physiology, Pathology and Related Sciences, Other

1309 Pharmacology and Toxicology

130901 Pharmacology
130902 Molecular Pharmacology
130903 Neuropharmacology
130904 Toxicology
130905 Molecular Toxicology
130906 Environmental Toxicology
130907 Pharmacology and Toxicology
130999 Pharmacology and Toxicology, Other

1310 Biomathematics and Bioinformatics

131001 Biometry/Biometrics
131002 Biostatistics
131003 Bioinformatics
131004 Mathematical Biology
131099 Biomathematics and Bioinformatics, Other

1311 Biotechnology

131101 Biotechnology

1312 Ecology, Evolution, Systematics and Population Biology

131201 Ecology
131202 Marine Biology and Biological Oceanography
131203 Evolutionary Biology
131204 Aquatic Biology/Limnology
131205 Environmental Biology
131206 Population Biology
131207 Conservation Biology
131208 Systematic Biology/Biological Systematics
131209 Epidemiology
131299 Ecology, Evolution, Systematics and Population Biology, Other

1399 Life Sciences, Other

CESM 14: PHYSICAL SCIENCES

A broad area of study which focuses on the scientific inanimate objects, processes of matter and energy and associated phenomena.

1401 Physical Sciences, General

140101 Physical Sciences, General

1402 Astronomy and Astrophysics

140201 Astronomy
140202 Astrophysics
140203 Planetary Astronomy and Science
140204 Space Physics
140299 Astronomy and Astrophysics, Other

1403 Atmospheric Sciences and Meteorology

140301 Atmospheric Sciences and Meteorology, General
140302 Atmospheric Chemistry and Climatology
140303 Atmospheric Physics and Dynamics
140304 Meteorology
140399 Atmospheric Sciences and Meteorology, Other

1404 Chemistry

140401 Chemistry, General
140402 Analytical Chemistry
140403 Inorganic Chemistry
140404 Organic Chemistry
140405 Physical and Theoretical Chemistry
140406 Polymer Chemistry
140407 Chemical Physics
140499 Chemistry, Other

1405 Geography and Cartography

140501 Geography
140502 Cartography
140503 Environmental Science
140504 Natural Resources and Environmental Management and Policy
140599 Geography and Cartography, Other

1406 Geology and Earth Sciences/Geosciences

140601 Geology/Earth Science, General
140602 Geochemistry
140603 Geophysics and Seismology
140604 Palaeontology
140605 Hydrology and Water Resources Science
140606 Geochemistry and Petrology
140607 Oceanography, Chemical and Physical
140699 Geology and Earth Sciences/Geosciences, Other

1407 Physics

140701 Physics, General
140702 Atomic/Molecular Physics
140703 Elementary Particle Physics
140704 Plasma and High Temperature Physics
140705 Nuclear Physics
140706 Optics/Optical Sciences
140707 Solid State and Low Temperature Physics
140708 Acoustics
140709 Theoretical and Mathematical Physics
140799 Physics, Other

1499 Physical Sciences, Other

CESM 15: MATHEMATICS AND STATISTICS

A broad area of study concerned with logical symbolic language and its applications to the solution of functional problems and to obtain and analyse data in order to make sound inferences in the face of uncertainty.

1501 Mathematics

150101 Mathematics, General
150102 Algebra and Number Theory
150103 Analysis and Functional Analysis
150104 Geometry/Geometric Analysis
150105 Topology and Foundations
150199 Mathematics, Other

1502 Applied Mathematics

150201 Applied Mathematics, General
150202 Computational Mathematics
150299 Applied Mathematics, Other

1503 Statistics

150301 Statistics, General
150302 Mathematical Statistics and Probability
150399 Statistics, Other

1599 Mathematics and Statistics, Other

CESM 16: MILITARY SCIENCES

The scientific study of the socio-political and geo-spatial environment in which the defence system of the country operates; the organisational dynamics of the military as an institution; the human and material resources required to execute its mission, and the application of this knowledge in the management of the security challenges facing the country.

1601 Defence Organisation and Resource Management

160101 Military Accounting and Auditing
160102 Military Economics
160103 Military Management
160104 Military Public and Development Management
160199 Defence Organisation and Resource Management, Other

1602 Military Human Resource Management and Development

160201 Military Sociology
160202 Military Industrial Psychology
160299 Military Human Resource Management and Development, Other

1603 Military Technology and Applied Physical Science

160301 Military Aeronautical Science
160302 Military Technology
160303 Military Nautical Science
160304 Military Mathematics
160305 Military Physics
160306 Military Geography
160307 Military Computer Information Systems
160399 Military Technology and Applied Physical Science, Other

1604 Military Security Studies

160401 Military History
160402 Military Strategy
160403 Military Political Science
160499 Military Security Studies, Other

1605 Military Professional Development

160501 Military Professional Development

1699 Military Sciences, Other

CESM 17: PHILOSOPHY, RELIGION AND THEOLOGY

A broad area of study concerned with the critical analysis of and reflection on the ideas, theories, categories, concepts and methods for describing and evaluating human experience and reality.

A broad area of study concerning religion and different theologies, namely Buddhism, Christianity, Hinduism, Islam, Judaism and African indigenous religions.

1701 Philosophy

170101 Philosophy, General
170102 Main Philosophical Currents and Trends
170103 Logic
170104 Ethics
170199 Philosophy, Other

1702 Religion

170201 Religion

1703 Theology

170301 African Indigenous Religions
170302 Buddhism
170303 Christianity
170304 Hinduism
170306 Islam
170307 Judaism
170399 Theology, Other

1799 Philosophy, Religion and Theology, Other

CESM 18: PSYCHOLOGY

A broad area of study which focuses on the behaviour of individuals, independently or collectively, and the physical and environmental bases of mental, emotional and neurological development and processes.

1801 Psychology, General

180101 Psychology, General

1802 Clinical Psychology

180201 Clinical Psychology, General
180202 Clinical Child Psychology
180203 Clinical Psychology, Professional Studies
180299 Clinical Psychology, Other

1803 Cognitive Psychology and Psycholinguistics

180301 Cognitive Psychology and Psycholinguistics

1804 Community Psychology

180401 Community Psychology

1805 Comparative Psychology

180501 Comparative Psychology

1806 Counselling Psychology

180601 Counselling Psychology
180602 Family Psychology
180603 Marriage and Family Therapy/Counselling
180699 Counselling Psychology, Other

1807 Developmental and Child Psychology

180701 Developmental and Child Psychology

1808 Educational Psychology

180801 Educational Psychology
180802 School Psychology
180899 Educational Psychology, Other

1809 Environmental Psychology

180901 Environmental Psychology

1810 Research Methodology for Psychology

181001 Research Methodology for Psychology

1811 Forensic Psychology

181101 Forensic Psychology

1812 Geropsychology

181201 Geropsychology

1813 Health/Medical Psychology

181301 Health/Medical Psychology
181302 Psychopharmacology
181399 Health/Medical Psychology, Other

1814 Industrial and Organisational Psychology

181401 Industrial and Organisational Psychology, General
181402 Occupational and Career Psychology
181403 Organisasional Psychology
181404 Occupational Health, Well-being and Performance Dysfunction in the Workplace
181499 Industrial and Organisational Psychology, Other

1815 Personality Psychology

181501 Personality Psychology

1816 Physiological Psychology/Psychobiology

181601 Physiological Psychology/Psychobiology
181602 Biopsychology
181603 Neoropsychology
181699 Physiological Psychology/Psychobiology, Other

1817 Psychometrics and Applied Psychological Assessment

181701 Psychometrics and Quantitative Psychology
181702 Applied Psychological Assessment
181799 Psychometrics and Applied Psychological Assessment, Other

1818 Social Psychology

181801 Social Psychology, General
181802 Positive Psychology
181899 Social Psychology, Other

1899 Psychology, Other

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CESM 19: PUBLIC MANAGEMENT AND SERVICES

A broad area of study concerned with the formulation, implementation, administration, evaluation and management of public policies, programmes and services, including criminal justice and correctional services.

1901 Human Services

190101 Human Services, General

1902 Community Organisation and Advocacy

190201 Community Organisation and Advocacy

1903 Public Administration

190301 Public Administration

1904 Public Policy Analysis

190401 Public Policy Analysis

1905 Criminal Justice and Corrections

190501 Corrections
190502 Criminal Justice/Law Enforcement Administration
190503 Criminal Justice/Safety Issues
190504 Forensic Science and Technology
190505 Criminal Justice/Police Science
190506 Juvenile Corrections
190507 Criminalistics and Criminal Science
190508 Corrections Management
190599 Criminal Justice and Corrections, Other

1999 Public Management and Services, Other

CESM 20: SOCIAL SCIENCES

A broad area of study of social sciences, social institutions, and social behaviour, as well as the interpretation of past events, issues and cultures.

2001 Anthropology

200101 Social-Cultural Anthropology,
200102 Physical (Biological) Anthropology
200199 Anthropology, Other

2002 Archaeology

200201 Archaeology

2003 History

200301 History, General
200302 African History
200303 American (United States) History
200304 Asian History
200305 European History
200306 History and Philosophy of Science and Technology
200307 South African History
200308 History of Ancient Cultures
200399 History, Other

2004 Library Science/Librarianship

200401 Library Science/Librarianship, General
200402 Public/Applied History and Archival Administration
200499 Library Science/Librarianship, Other

2005 Museology/Museum Studies

200501 Museology/Museum Studies

2006 Political Science and Government

200601 Political Science and Government, General
200602 Comparative Political Systems
200603 Contemporary World Affairs
200604 International Relations and Affairs
200699 Political Science and Government, Other

2007 Sociology

200701 Sociology
200702 Demography and Population Studies
200703 The Sociology of Developing Societies
200799 Sociology, Other

2007 Social Work

200701 Social Work, General
200802 Child and Youth Services/Administration
200899 Social Work, Other

2099 Social Sciences, Other

PART 2: DEFINITIONS OF EDUCATION SUBJECT MATTER

CESM 01: AGRICULTURE, AGRICULTURAL OPERATIONS AND RELATED SCIENCES

A broad area of study concerned with the production and management of crops and meat, the breeding of agricultural animals and plants, the development of resources like soil and forests, and the processing of food.

0101 Agricultural Business and Management

010101 Agribusiness/Agricultural Business Operations
An area of study which prepares individuals to manage agricultural businesses and agriculturally related operations within diversified corporations. Includes instruction in agriculture, agricultural specialisation, business management, accounting, finance, marketing, planning, human resources management, and other managerial responsibilities.

010102 Agricultural Economics
An area of study which focuses on the application of economics to the analysis of resource allocation, productivity, investment, and trends in the agricultural sector, both domestically and internationally. Includes instruction in economics and related subfields as well as applicable agricultural fields.

010103 Wildlife and Other Reserve Management
An area of study which prepares individuals to manage farms, reserves and similar enterprises. Includes instruction in applicable agricultural specialisation, business management, accounting, taxation, capitalisation, purchasing, government programmes and regulations, operational planning and budgeting, contracts and negotiation, and estate planning.

010104 Agricultural/Farm Supplies Retailing and Wholesaling
An area of study which prepares individuals to sell agricultural products and supplies, provide support services to agricultural enterprises, and purchase and market agricultural products. Includes instruction in basic business management, marketing, retailing and wholesaling operations, and applicable principles of agriculture and agricultural operations.

010105 Agricultural Business Technology
An area of study which prepares individuals to perform specialised support functions related to agricultural business offices and operations, and to operate agricultural office equipment, software and information systems. Includes instruction in basic agricultural business principles, office management, equipment operation, standard software, and database management.

010106 Agricultural Extension
An area of study that prepares individuals to provide referral, consulting, technical assistance, and educational services to gardeners, farmers, ranchers, agribusinesses, and other organisations. Includes instruction in basic agricultural sciences, agricultural business operations, pest control, adult education methods, public relations, applicable state laws and regulations, and communication skills.

010199 Agricultural Business and Management, Other
Any area of study in agricultural business and management not listed above.

102 Agricultural Mechanisation

010201 Agricultural Mechanisation
An area of study which generally prepares individuals to sell, select and service agricultural or agribusiness technical equipment and facilities, including computers, specialised software, power units, machinery, equipment structures and utilities. Includes instruction in agricultural power systems; planning and selecting materials for the construction of support facilities; mechanical practices associated with irrigation and water conservation; erosion control; and agricultural data processing systems.

010202 Agricultural Mechanics and Equipment/Machine Technology
An area of study which prepares individuals to maintain and repair specialised farm, and agribusiness power equipment and vehicles. Includes instruction in the principles of diesel, combustion, electrical, steam, hydraulic and mechanical systems and their application to the maintenance of terrestrial and airborne crop spraying equipment; tractors and hauling equipment; planting and harvesting equipment; cutting equipment; power sources and systems for silos; irrigation and pumping equipment; dairy, feeding and shearing operations; and processing systems.

010299 Agricultural Mechanisation, Other
Any area of study in agricultural mechanisation not listed above.

0103 Agricultural Production Operations

010301 Animal/Livestock Husbandry and Production
An area of study which prepares individuals to select, breed, care for, process and market livestock and small farm animals. Includes instruction in basic animal science, animal nutrition and animal health as applied to various species and breeds; design and operation of housing, feeding and processing facilities; and related issues of safety, applicable regulations, logistics and supply.

010302 Aquaculture
An area of study which prepares individuals to select, culture, propagate, harvest and market domesticated fish, shellfish and marine plants, both freshwater and saltwater. Includes instruction in the basic principles of aquatic and marine biology; health and nutrition of aquatic and marine life; design and operation of fish farms, breeding facilities, culture beds and related enterprises; and related issues of safety, applicable regulations, logistics and supply.

010303 Crop Production
An area of study which prepares individuals to cultivate grain, fibre, forage, oilseed, fruits and nuts, vegetables and other domesticated plant products. Includes instruction in basic principles of plant science, health and nutrition as applied to particular species and breeds; soil preparation and irrigation; pest management; planting and harvesting operations; product marketing; and applicable issues of safety, regulation, logistics and supply.

010304 Dairy Husbandry and Production
An area of study which prepares individuals to manage the selection and care of dairy animals and associated dairy farm and processing facilities and operations. Includes instruction in basic animal and dairy science; dairy animal nutrition and health; design and operation of dairy housing, feeding and processing facilities and equipment; and related issues of safety, sanitation, shipping and handling, and applicable regulations.

010305 Fishing and Fisheries Sciences and Management
An area of study which focuses on the scientific study of the husbandry and production of non-domesticated fish and shellfish populations for recreational and commercial purposes and the management of fishing and marine/aquatic utilisation. Includes instruction in the principles of marine/aquatic biology, freshwater and saltwater ecosystems, water resources, fishing production operations and management, fishing policy and regulations, and the management of recreational and commercial fishing activities.

010306 Horse Husbandry/Equine Science and Management
An area of study which prepares individuals to manage the selection, breeding, care and maintenance of work, athletic and show horses; and horse farms, stables, tracks and related equipment and operations. Includes instruction in applicable principles of animal science, care and health; stable and track management; design and operation of facilities and equipment; and related issues such as regulations, business management and logistics.

010399 Agricultural Production Operations, Other
Any area of study in agricultural production operations not listed above.

0104 Applied Horticulture and Horticultural Business Services

010401 Applied Horticulture/Horticultural Operations, General
An area of study which focuses on the general production and processing of domesticated plants, shrubs, flowers, foliage, trees, groundcovers, and related plant materials; the management of technical and business operations connected with horticultural services; and the basic scientific principles needed to understand plants and their management and care.

010402 Ornamental Horticulture
An area of study which focuses on domesticated plants and plant materials used for decorative and recreational applications and prepares individuals to breed, grow and utilise ornamental plant varieties for commercial and aesthetic purposes. Includes instruction in applicable plant science subjects, the environmental design and artistic aspects of horticultural product usage, and the management of horticultural operations.

010403 Greenhouse Operations and Management
An area of study which prepares individuals to produce, store and deliver plant species in controlled indoor environments for wholesale, commercial, research or other purposes. Includes instruction in applicable principles of plant science; climate, irrigation and nutrition control equipment operations and maintenance; facilities management; inventory control; safety procedures; and personnel supervision.

010404 Landscaping and Grounds Keeping
An area of study which prepares individuals to manage and maintain indoor and/or outdoor ornamental and recreational plants and groundcovers and related conceptual designs established by landscape architects, interior designers, enterprise owners or managers, and individual clients. Includes instruction in applicable principles of horticulture, gardening, plant and soil irrigation and nutrition, turf maintenance, plant maintenance, equipment operation and maintenance, personnel supervision, and purchasing.

010405 Plant Nursery Operations and Management
An area of study which prepares individuals to operate and manage outdoor plant farms, tree and shrub nurseries, and related facilities that develop domesticated plant products for propagation, harvesting and transplantation. Includes

instruction in applicable principles of plant science; farm and business management; nursery operations; equipment operation and maintenance; safety procedures; and personnel supervision.

010406 Turf and Turf Grass Management
An area of study which focuses on turf grasses and related groundcover plants and prepares individuals to develop ornamental or recreational grasses and related products; plant, transplant and manage grassed areas; and to produce and store turf used for transplantation. Includes instruction in applicable plant sciences, genetics of grasses, turf science, use analysis, turf management, and related economics.

010407 Floriculture/Floristry Operations and Management
An area of study which individuals to operate and manage commercial and contract florist enterprises, supply and delivery services, and flower catering services. Includes instruction in the applicable principles of plant science/ purchasing, storage and delivery systems; floral design and arranging; and principles of business management.

010499 Applied Horticulture and Horticultural Business Services, Other
Any area of study in applied horticultural/horticultural business services not listed above.

0105 International Agriculture

010501 International Agriculture
An area of study which focuses on the application of agricultural management and scientific principles to the problems of global food production and distribution, and to the study of the agricultural systems of other countries. Includes instruction in agricultural economics; comparative agricultural systems; international agribusiness and law; third-world development studies and economic development; and global applications of climate, soil, water resources, ecological and environmental studies, and animal and plant sciences.

0106 Animal Sciences

010601 Animal Sciences, General
A general area of study which focuses on the scientific principles that underlie the breeding and husbandry of agricultural animals, and the production, processing and distribution of agricultural animal products. Includes instruction in the animal sciences, animal husbandry and production, and agricultural and food products processing.

010602 Agricultural Animal Breeding
An area of study which focuses on the application of genetics and genetic engineering to the improvement of agricultural animal health, the development of new animal breeds, and the selective improvement of agricultural animal populations. Includes instruction in genetics, genetic engineering, population genetics, animal health, animal husbandry, and biotechnology.

010603 Animal Health
An area of study which focuses on the application of biological and chemical principles to the study, prevention and control of diseases in agricultural animal populations. Includes instruction in environmental science, pharmacology, animal population studies, genetics, animal physiology and diet, disease prevention, treatment methodologies, and laboratory and testing procedures.

010604 Animal Nutrition

An area of study which focuses on the biology and chemistry of proteins, fats, carbohydrates, water, vitamins and feed additives as related to animal health and the production of improved animal products. Includes instruction in nutrition science, animal health and physiology, biochemistry, cellular and molecular biology, animal husbandry, and food science.

010605 Dairy Science

An area of professional study which focuses on the application of biological and chemical principles to the production and management of dairy animals and the production and handling of dairy products. Includes instruction in animal sciences, nutrition sciences, food science and technology, biochemistry, and related aspects of human and animal health and safety.

010606 Livestock Management

An area of study which focuses on the application of biological and chemical principles to the production and management of livestock animals and the production and handling of meat and other products. Includes instruction in animal sciences, range science, nutrition sciences, food science and technology, biochemistry, and related aspects of human and animal health and safety.

010607 Poultry Science

An area of study which focuses on the application of biological, and chemical principles to the production and management of poultry animals and the production and handling of poultry products. Includes instruction in avian sciences, nutrition sciences, food science and technology, biochemistry, hatchery design, and related aspects of human and animal health and safety.

010699 Animal Sciences, Other

Any area of study in the animal sciences not listed above.

0107 Food Science and Technology

010701 Food Science

An area of study which focuses on the application of biological, microbiological, chemical and physical and legislation principles to the study of converting raw agricultural products into processed forms suitable for direct human consumption, and the storage of such products. Includes instruction and scientific management of applicable aspects of the engineering and agricultural sciences, statistical evaluation, sensory and quality management, food chemistry, agricultural products processing and stabilisation, food additives, food preparation and packaging, food storage and shipment, and related aspects of human health and safety, including toxicology and pathology.

010702 Food Technology and Processing

An area of study which focuses on the application of chemical, fermentative, microbiological, physical, food processing and engineering principles to the development and implementation of manufacturing, packaging, storage, and distribution technologies and processes for food products. Includes instruction in food engineering, food preservation and handling, new product development and preparation, food packaging and display, food storage and shipment, and related equipment and facilities design, operation and maintenance.

010703 Oenology and Wine Biotechnology

An area of study which focuses on the application of chemical, biological, molecular biology, genetics, metabolomics and technological scientific principles to the production, management and ageing of wine and wine-related products. Includes instruction in wine science; wine chemistry; wine stabilisation and

ageing; wine aroma; legislation related to wine production; microbiology and biotechnology; genetic engineering of wine yeasts and bacteria and the scientific management of winemaking practices.

010799 Food Science and Technology, Other
Any area of study in food sciences and technology not listed above.

0108 Plant Sciences

010801 Plant Sciences, General
An area of study which focuses on the scientific principles that underlie the breeding, cultivation and production of agricultural plants, and the production, processing and distribution of agricultural plant products. Includes instruction in the plant sciences, crop cultivation and production, and agricultural and food products processing.

010802 Agronomy and Crop Science
An area of study which focuses on the chemical, physical and biological relationships of crops and the soils nurturing them. Includes instruction in the growth and behaviour of agricultural crops, the development of new plant varieties, and the scientific management of soils and nutrients for maximum plant nutrition, health and productivity.

010803 Horticultural Science
An area of study that focuses on the scientific principles related to the cultivation of garden and ornamental plants, including fruits, vegetables, flowers, and landscape and nursery crops. Includes instruction in specific types of plants, such as citrus; breeding horticultural varieties; physiology of horticultural species; and the scientific management of horticultural plant development and production through the life cycle.

010804 Agricultural and Horticultural Plant Breeding
An area of study which focuses on the application of genetics and genetic engineering to the improvement of agricultural plant health, the development of new plant varieties, and the selective improvement of agricultural plant populations. Includes instruction in genetics, genetic engineering, population genetics, agronomy, plant protection, and biotechnology.

010805 Plant Protection and Integrated Pest Management
An area of study which focuses on the application of scientific principles to the control of animal and weed infestation of domesticated plant populations, including agricultural crops; the prevention/reduction of attendant economic loss; and the control of environmental pollution and degradation related to pest infestation and pest control measures. Includes instruction in entomology, applicable animal sciences, plant pathology and physiology, weed science, crop science, and environmental toxicology.

010806 Range Science and Management
An area of study which focuses on the scientific study of rangelands, arid regions, grasslands, and other areas of low productivity, as well as the principles of managing such resources for maximum benefit and environmental balance. Includes instruction in livestock management, wildlife biology, plant sciences, ecology, soil science and hydrology.

010807 Viticulture and Grapevine Biotechnology
An area of study which focuses on the scientific principles that underlie the breeding, cultivation and production of grapevines for wine and table grapes, as

well as molecular biology, genetics, metabolomics and genetic engineering for the improvement of wine and table grape cultivars and rootstocks. Includes instruction in cultivar science; grapevine physiology; molecular aspects of key processes; the development of new cultivars and clones; terroir; biotechnology; and *in vitro* tissue culture technologies and the scientific management of grapevine plant development and vineyard cultivation practices.

010899 Plant Sciences, Other
Any area of study in plant sciences not listed above.

0109 Soil Sciences

010901 Soil Science and Agronomy, General
An area of study which generally focuses on the scientific classification of soils, soil properties, and their relationship to agricultural crops. Includes instruction in soil chemistry, soil physics, soil fertility, morphogenesis, mineralogy, hydrology, agronomy, and soil conservation and management.

010902 Soil Chemistry and Physics
An area of study which focuses on the application of chemical and physical principles to research and analysis concerning the nature and properties of soils and the conservation and management of soils. Includes instruction in soil and fluid mechanics, mineralogy, sedimentology, thermodynamics, geomorphology, environmental systems, analytical methods, and organic and inorganic chemistry.

010903 Soil Microbiology
An area of study which focuses on the application of microbiological theory and methods to the study of the organismic properties of soils, soil-plant and soil-animal interactions, and the biological components and effects of soil management strategies. Includes instruction in microbiology and related biological sciences, applicable animal and plant sciences, soil chemistry and physics as related to biological characteristics, and environmental science.

010999 Soil Sciences, Other
Any area of study in soil sciences not listed above.

0110 Forestry and Wood Sciences

011001 Wood and Wood Products Sciences
An area of study which focuses on the scientific principles that underly the processing of timber into wood products. Includes wood anatomy, wood chemistry, wood physics and drying, wood mechanics, wood preservation, wood machining and processing, composite materials, wood adhesives, wood finishes, furniture design and construction.

011002 Forestry Sciences
An area of study which focuses on the application of natural scientific principles that govern the establishment, growth, survival, management and utilisation of timber plantations, natural forests, and woodlands. It includes silviculture, inventories and enumeration, prediction of tree growth and timber yields, forest management, yield regulation, forest policy, forest finance, geo-informatics, agroforestry, community forestry, logistics, access.

011099 Forestry and Wood Sciences, Other
An area of study in forestry and wood sciences not listed above.

0199 Agriculture, Agricultural Operations and Related Sciences, Other

Any area of study in agriculture, agricultural operations and related sciences not listed above.

CESM 02: ARCHITECTURE AND THE BUILT ENVIRONMENT

A broad field of study focusing on various aspects of architecture-related fields, including the application of the principles of planning and analysis to the development and improvement of urban areas, the design of different types of spaces for leisure and living purposes, and the aesthetic and socioeconomic aspects of the built environment.

0201 Architecture, General

020101 Architecture, General
An area of study which prepares individuals for the independent professional practice of architecture and to conduct research in various aspects of the field. Includes instruction in architectural design, history, and theory; building structures and environmental systems; project and site planning; construction; professional responsibilities and standards; and related cultural, social, economic, and environmental issues.

0202 City/Urban, Community and Regional Planning

020201 City/Urban, Community and Regional Planning
An area of study that prepares individuals to apply principles of planning, analysis, and architecture to the development and improvement of urban areas and surrounding regions, and to function as professional planners. Includes instruction in principles of architecture; master plan development; service, communications, and transportation systems design; community and commercial development; zoning; land use planning; applied economics; policy analysis; applicable laws and regulations; and professional responsibilities and managerial duties.

0203 Building/Construction Site Management

020301 Building/Construction Site Management
An area of study which prepares individuals to supervise, manage, and inspect construction sites, buildings, and associated facilities. Includes instruction in site safety, personnel supervision, labour relations, diversity training, construction documentation, scheduling, resource and cost control, bid strategies, rework prevention, construction insurance and bonding, accident management and investigation, applicable law and regulations, and communication skills.

020302 Construction Management
An area of study which prepares individuals to manage, coordinate, and supervise the construction process from concept development through project completion on timely and economic bases. Includes instruction in commercial, residential, mechanical, highway/heavy civil, electrical, environmental, industrial, and specialty construction; facilities management; project planning; budgeting and cost control; logistics and materials management; personnel management and labour relations; site safety; construction contracting; construction processes and techniques; organisation and scheduling; and applicable codes and regulations.

020399 Building/Construction Site Management, Other
An area of study in building/construction site management not listed above.

0204 Environmental Design/Architecture

020401 Environmental Design/Architecture

An area of study which prepares individuals to design public and private spaces, indoor and outdoor, for leisure, recreational, commercial, and living purposes, and for professional practice as environmental designers and architects. Includes instruction in the design and planning of public and private open spaces and their relationship to buildings and other aspects of the built environment; facilities management; related aspects of interior design and architecture, landscape architecture, and urban planning; and professional responsibilities and standards.

0205 Interior Architecture and Design

020501 Interior Architecture and Design

An area of study which prepares individuals to apply architectural principles in the design of structural interiors for living, recreational, and business purposes and to function as professional interior architects. Includes instruction in architecture, structural systems design, heating and cooling systems, occupational and safety standards, interior design, specific end-use applications, and professional responsibilities and standards.

0206 Landscape Architecture

020601 Landscape Architecture

An area of study which prepares individuals for the independent professional practice of landscape architecture and research in various aspects of the field. Includes instruction in geology and hydrology; soils, ground covers, and horticultural elements; project and site planning; landscape design, history, and theory; environmental design; applicable law and regulations; and professional responsibilities and standards.

0207 Architectural History and Criticism

020701 Architectural History and Criticism

An area of study which focuses on the aesthetic, technical, and social development of the built environment and the architectural profession from earliest times to the present. Includes instruction in the principles of architecture and related fields; art history; historiography of architecture; architectural theory and criticism; related aspects of the history of technology and social and economic history; and various period, cultural, and stylistic specialisations.

0208 Architectural and Built Environment Technology

020801 Architectural and Built Environment Technology

An area of study which prepares individuals to assist architects in developing plans and related documentation and in performing architectural office services. Includes instruction in architectural drafting, computer-assisted drafting and design, construction methods and materials, environmental systems, building codes and standards, structural principles, cost estimation, planning documentation, visual communication skills, display production, and architectural office management.

0209 Quantity Surveying

020901 Quantity Surveying

An area of study which prepares individuals to provide economic and legal advice to the construction industry. Includes instruction in costing the construction of a building, road or complex engineering installation, from the design stage to the final completion of the contract. The area of study also prepares individuals to provide contractual advice, with regard to the establishment and administration of the rights

and obligations of the different parties to the contract. Includes developing skills in the structuring and documentation of the construction contracts and economic management of complex construction projects, using conventional methods as well as special computer software programmes.

0299 Architecture and the Built Environment, Other

Any area of study in architecture and the built environment not listed above.

CESM 03: VISUAL AND PERFORMING ARTS

A broad field of study which focuses on the creation and interpretation of works and performances that use auditory, kinaesthetic, and visual phenomena to express ideas and emotions in various forms, subject to aesthetic criteria.

0301 Dance

030101 Dance, General

An area of study which prepares individuals to express ideas, feelings and/or inner visions through the performance of one or more of the dance disciplines, including but not limited to ballet, modern, jazz, ethnic and folk dance, and that focuses on the study and analysis of dance as a cultural phenomenon. Includes instruction in technique, choreography, systems of notations, dance history and criticism, and dance production.

0302 Design and Applied Arts

030201 Design and Visual Communications, General

An area of study in the applied visual arts which focuses on the general principles and techniques for effectively communicating ideas and information, and packaging products, in digital and other formats to business and consumer audiences, and that may prepare individuals in any of the applied art media.

030202 Commercial and Advertising Art

An area of study in the applied visual arts which prepares individuals to use design principles to effectively communicate ideas and information to business and consumer audiences via illustrations and other forms of digital or printed media. Includes instruction in concept design, layout, paste-up, and techniques such as engraving, etching, silkscreen, lithography, offset, drawing and cartooning, painting, collage and computer graphics.

030203 Industrial Design

An area of study in the applied visual arts which prepares individuals to use design principles to effectively communicate ideas and information to business and consumer audiences via the creation of effective forms, shapes, and packaging for manufactured products. Includes instruction in designing a wide variety of plastic and digital media, prototype construction, design development and refinement, principles of cost saving, and product structure and performance criteria relevant to aesthetic design parameters.

030204 Commercial Photography

An area of study in the applied visual arts which prepares individuals to use design principles to effectively communicate recording events and information to business and consumer audiences, and recording events and people, via digital, film, still and video photography. Includes instruction in specialised camera and equipment operation and maintenance, applications to commercial and industrial needs, and photography business operations.

030205 Fashion/Apparel Design

An area of study which prepares individuals to apply design principles to the professional design of commercial fashions, apparel and accessories, and the management of fashion development projects. Includes instruction in apparel design; the design of men's, women's and children's wear; flat pattern design;

computer-assisted design and manufacturing; concept planning; designing in specific materials; labour and cost analysis; history of fashion; fabric art and printing; and the principles of management and operations in the fashion industry.

030206 Interior Design

An area of study in the applied visual arts which prepares individuals to apply design principles to the professional planning, designing, equipping and furnishing of residential and commercial interior spaces. Includes instruction in computer applications drafting and graphics techniques; principles of interior lighting, acoustics, systems integration and colour coordination; furniture and furnishings; textiles and their finishing; the history of interior design and period styles; basic structural design; building codes and inspection regulations; and applications to office, hotel, factory, restaurant and housing design.

030207 Graphic Design

An area of study which prepares individuals to apply design principles and computer techniques to the interpretation of technical and commercial concepts. Includes instruction in computer-assisted art and design, printmaking, concepts sketching, technical drawing, colour theory, imaging, studio technique, still and life modelling, communication skills and commercial art business operations.

030208 Illustration

An area of study which prepares individuals to use design principles to develop and execute interpretations of the concepts of authors and designers to specifications. Includes instruction in book illustration, fashion illustration, map illustration, rendering, exhibit preparation, textual layout, cartooning, and the use of various artistic techniques as requested by clients.

030299 Design and Applied Arts, Other

Any area of study in design and applied arts not listed above.

0303 Drama/Theatre Arts

030301 Drama, Theatre and Performance, General

An area of study which focuses on the study of play making, drama texts and their performance. This includes instruction in a range (cultural and national) of dramatic literatures, performances, styles and genres, and the principles of organising and producing live performances, recorded and/or filmed performances.

030302 Theatre Design and Technology

An area of study which prepares individuals to understand and apply artistic, technical and dramatic principles and techniques in designing performance spaces, sets and costumes for theatre productions in order to support the realisation of a production including a consideration of directors brief and the performance requirements. It includes an understanding of design, lighting design, sound effects, theatre acoustics, scene painting, property management, costume design, and technical direction and the use of computer applications to support the vision of the director and the demands of the performance.

030303 Playwriting and Screenwriting

An area of study which focuses on a range of principles and techniques for realising theatre and film scripts and play making. This includes notions of structures, narrative, character, action and mood It includes an under-standing of creative writing techniques, genres and the demands that the theatre and film make on the writing process. It can also include communal play-creation as a script development process.

030304 Theatre Literature, History and Criticism

An area of study which focuses on the study of the history of theatre and performance in the various traditions, cultures and communities, as well as related dramatic and literary theories and modes of analysis. Includes analytic studies of individual texts and performances and the social, political, cultural and economic contexts for performances. Also their impact on modes of representation such as acting and directing styles and traditions.

030305 Acting

An area of study which prepares individuals to interpret and construct performance texts through embodying character and other performance signifiers. This includes instruction in the realisation of intention and meaning through the integration of speech movement, mime, improvisation, and acting styles. Includes training in performance focussed script analysis and contextual research.

030306 Directing and Production for the Theatre

An area of study which prepares individuals to conceive and manage the artistic and practical planning, design, preparation and production of plays and other theatrical entertainment programmes. Includes instruction in conceptual thinking, theatrical design, programme management, dramatic production, rehearsal management, personnel management and casting, actor training, directing concepts and techniques, theatre history, scene work, script and interpretation.

030307 Performing Arts Management

An area of study which prepares individuals to apply business management principles to the management of performances, theatres and production corporations. Includes an understanding of the arts landscape in relation to fundraising and marketing, human resources management, theatre operations management, public relations, financial management and insurance, and applicable laws and regulations.

030399 Drama/Theatre Arts, Other

Any area of study in drama/theatre arts not listed above.

0304 Film/Video and Photographic Arts

030401 Film/Cinema Studies

An area of study in the performing and visual arts that focuses on the study of the history, development, conseptualisation, theory, interrogation and production of film and new media, such as digital filmmaking and cybercultural objects.

030402 Photography

An area of study which focuses on the principles and techniques of communicating information, ideas, moods and feelings through the creation of images on photographic film, plates, and that may prepare individuals to be professional photographic artists. Includes instruction in camera and equipment operation and maintenance, film developing, films and printing media, colour and special effects, photographic art, the history of photography, use of computer applications to record or enhance images and the applications of photography to a variety of subjects.

030499 Film/Video and Photographic Arts, Other

Any area of study in film/video and photographic arts not listed above.

0305 Fine and Studio Art

030501 Art/Art Studies, General

An area of study which focuses on the introductory study and appreciation of the visual arts. Includes instruction in art, photography and other visual communications media.

030502 Fine/Studio Arts, General

An area of study which prepares individuals to generally function as creative artists in the visual and plastic media. Includes instruction in the traditional fine arts media (drawing, painting, sculpture, printmaking, computer-aided design (CAD)/computer-aided manufacturing (CAM)) and/or modern media (ceramics, textiles, intermedia, photography, digital images), theory of art, colour theory, composition and perspective, anatomy, the techniques and procedures for maintaining equipment and managing a studio, and art portfolio marketing.

030503 Art History, Criticism and Conservation

An area of study which focuses on the study of the historical development of art as social and intellectual phenomenon, the analysis of works of art, and art conservation. Includes instruction in the theory art, art history research methods, connoisseurship, the preservation and conservation of works of art, and the study of specific periods, cultures, styles and themes.

030504 Arts Management

An area of study which prepares individuals to organise and manage art organisations, operations and facilities. Includes instruction in business and financial management, marketing and fundraising, personnel management and labour relations, event promotion and management, public relations and arts advocacy, arts law, and applications to specific arts activities such as galleries, museums, studios, foundations and community organisations.

030505 Drawing

An area of study which prepares individuals creatively and technically to express emotions, ideas or inner visions through representation by lines made on a surface. Includes instruction in eye-hand coordination, line, value, shape and perspective, figure and still life drawing, the use of media such as pen and ink, pencil, charcoal, pastel and brush, computer-aided design (CAD) technology, and personal style development.

030606 Intermedia/Multimedia

An area of study which prepares individuals creatively and technically to express emotions, ideas or inner visions in either two or three dimensions, through simultaneous use of a variety of materials and media.

030507 Painting

An area of study which prepares individuals creatively and technically to express emotions, ideas or inner visions by the application of paints and related chemical colour substances to canvases or other materials. Includes instruction in colour and colour mixing, surface preparation, composition, oil and acrylic media, watercolour media, painting techniques, and personal style development.

030508 Sculpture

An area of study which prepares individuals creatively and technically to express emotions, ideas or inner visions by creating three-dimensional art works. Includes instruction in the analysis of form in space; round and relief concepts; sculptural composition; modern and experimental methods; different media such as clay, plaster, wood, stone and metal; techniques such as carving, moulding, welding, casting and modelling; and personal style development.

030509 Printmaking

An area of study which prepares individuals creatively and technically to express emotions, ideas or inner visions by rendering art concepts onto surfaces and transferring images, via ink or dyes, onto paper or fabric. Includes instruction in monochrome and colour printing; tonality; chemistry; equipment set-up and maintenance; techniques such as serigraphy, lithography, intaglio, woodcut, block, stencil, relief, etching and composite; and personal style development.

030510 Ceramic Arts and Ceramics

An area of study which prepares individuals creatively and technically to express emotions, ideas or inner visions by producing art works out of clay and similar materials. Includes instruction in hand built and wheel thrown techniques; moulding; slips and glazes; trimming and decorating; firing and kiln operation; oxidation; mixed media; ceramic murals; and personal style development.

030511 Fibre, Textile and Weaving Arts

An area of study which prepares individuals creatively and technically to express emotions, ideas or inner visions by constructing art works from woven or non-woven fabrics and fibrous materials. Includes instruction in weaving techniques and loom operation, non-woven techniques such as knitting, coiling, netting and crocheting, quilting, dyeing and pigmentation, printing and other finishing techniques, pattern design, tapestry, and personal style development.

030512 Metal and Jewellery Arts

An area of study which prepares individuals creatively and technically to express emotions, ideas or inner visions by fashioning art works from gems, other stones and precious metals. Includes instruction in gemmology; metalsmithing and finishing; stone cutting and polishing; metal and non-metal casting and moulding; electroforming; metal colouring; enamelling; photo etching; lapidary technique and art; design concepts; computer-aided design (CAD)/computer-aided manufacturing (CAM) technology and processes; and personal style development.

030599 Fine and Studio Art, Other

Any area of study in fine and studio art not listed above.

0306 Music

030601 Music, General

An area of study which focuses on the introductory study and appreciation of music and the performing arts.

030602 Music History and Literature

An area of study which focuses on the study of the historical evolution of music as a social and intellectual phenomenon, the development of musical instruments and techniques, and the analysis and criticism of musical literature. Includes instruction in music history research methods, aesthetic analysis of musical compositions, history of musical writing and notation, the development of musical instruments, the development of music theory, and the study of specific periods, cultural traditions, styles and themes.

030603 Music Performance, General

An area of study which generally prepares individuals to master musical instruments and the art of performance as solo and/or ensemble performers. Includes instruction on one or more specific instruments from various instrumental groupings.

030604 Music Theory, Composition and Analysis

An area of study which focuses on the study of the principles of sound manipulation as applied to the creation of music, and the techniques of creating and arranging music. Includes instruction in aural theory, melody, counterpoint, complex harmony, modulation, chromatics, improvisation, progressions, musical writing, instrumentation, orchestration, electronic and computer applications, studies of specific musical styles, and development of original creative ability.

030605 Musicology and Ethnomusicology

An area of study which focuses on the systematic study of the forms and methods of musical arts, and the functions of music, in Western and non-Western societies and cultures. Includes instruction in music theory, musicological research methods, and studies of specific cultural styles such as jazz, folk music, rock, ethnic musical traditions, and the music of non-Western cultures.

030606 Conducting

An area of study which prepares individuals to master the art of leading bands, choirs, orchestras and other ensembles in performance and related music leadership. Includes instruction in score analysis and arranging, rehearsal and performance leadership, music coaching, arrangement and performance planning, ensemble operations management, and applications to specific school or professional ensembles.

030607 Piano and Related Instruments

An area of study which prepares individuals to master the piano, organ, or related keyboard instruments and the art of performance as solo, ensemble and/or accompanist performers. Includes instruction in piano and keyboard pedagogy, ensemble playing, accompanying, service playing, repertoire, keyboard and pedal skills, recital, and personal style development.

030608 Voice and Opera

An area of study which prepares individuals to master the human voice and the art of performance as solo and/or ensemble performers in concert, choir, opera, or other forms of singing. Includes instruction in voice pedagogy, diction, vocal physiology and exercise, expressive movement, repertoire, recital, and personal style development.

030609 Music Management and Merchandising

An area of study which prepares individuals to organise and manage music organisations, operations, facilities and personnel. Includes instruction in business and financial management, marketing and fundraising, personnel management and labour relations, event promotion and management, music products merchandising, artist agency and promotion, music law, and applications to specific activities such as managing theatres, recording studios and companies, bands and other ensembles, individual artists, and music organisations.

030610 Jazz/Jazz Studies

An area of study which prepares individuals to study and master the performance and composition of Jazz. Includes instruction in the history of Jazz and related musical styles such as the Blues, Jazz composition and theory, improvisation, Jazz instrument and ensemble performance, and related topics.

030611 Violin, Viola, Guitar and Other Stringed Instruments

An area of study which prepares individuals to master a stringed instrument and the art of performance as solo, ensemble and/or accompanist performers. Includes instruction in playing and personal style development.

030612 Wind Instruments
An area of study which prepares individuals to master wind instruments and the art of performance as solo, ensemble and/or accompanist performers. Includes instruction in playing and personal style development.

030613 Music Pedagogy
An area of study which prepares individuals to provide musical instruction and tutoring to clients in private and institutional settings. Includes instruction in music theory, music composition, mastery of one or more instruments, familiarity with various musical genres and styles, principles of music education, and client communications.

030699 Music, Other
Any other area of study in music not listed above.

0399 Visual and Performing Arts, Other
Any area of study in visual and performing arts not listed above.

CESM 04: BUSINESS, ECONOMICS AND MANAGEMENT STUDIES

A broad field of study concerned with the theory and practice of the planning, managing, marketing and appraisal of small and large business enterprises; the systematic study of production, conservation and allocation of financial and human resources, as well as the preparation of individuals for administration and management in the hospitality and tourism industry.

0401 Business Administration, Management and Operations

040101 Business Administration and Management, General
An area of study which generally prepares individuals to plan, organise, direct and control the functions and processes of a firm or organisation. Includes instruction in management theory, human resources management and behaviour, accounting and other quantitative methods, purchasing and logistics, organisation and production, marketing and business decision-making.

040102 Purchasing, Procurement/Acquisitions and Contracts Management
An area of study which prepares individuals to manage and/or administer the processes by which a firm or organisation contracts for goods and services to support its operations, as well as contracts it to sell to other firms or organisations. Includes instruction in contract law, negotiations, buying procedures, government contracting, cost and price analysis, vendor relations, contract administration, auditing and inspection, relations with other firm departments, and applications to special areas such as high-technology systems, international purchasing, and construction.

040103 Logistics and Materials Management
An area of study which prepares individuals to manage and coordinate all logistical functions in an enterprise, ranging from acquisitions to receiving and handling, through internal allocation of resources to operations units, to the handling and delivery of output. Includes instruction in acquisitions and purchasing, inventory control, storage and handling, just-in-time manufacturing, logistics planning, shipping and delivery management, transportation, quality control, resource estimation and allocation, and budgeting.

040104 Office Management and Supervision
An area of study which prepares individuals to supervise and manage the operations and personnel of business offices and management-level divisions. Includes instruction in employee supervision; management and labour relations; budgeting; scheduling and coordination; office systems operation and maintenance; office records management; organisation, and security; office facilities design and space management; preparation and evaluation of business management data; and public relations.

040105 Operations Management and Supervision
An area of study which prepares individuals to manage and direct the physical and/or technical functions of a firm or organisation, particularly those relating to development, production and manufacturing. Includes instruction in principles of general management, corporate governance, manufacturing and production systems, plant management, equipment maintenance management, production control, industrial labour relations and skilled trades supervision, strategic manufacturing policy, systems analysis, productivity analysis and cost control, and materials planning.

040106 Non-Profit/Public/Organisational Management

An area of study which prepares individuals to manage the business affairs of non-profit corporations, including foundations, educational institutions, associations and other such organisations, and public agencies and governmental operations. Includes instruction in business management, principles of public administration, principles of accounting and financial management, human resources management, taxation of non-profit organisations, and business law as applied to non-profit organisations.

040107 Customer Service Management

An area of study which prepares individuals to supervise and monitor customer service performance and manage frontline customer support services, call centres/help desks, and customer relations. Includes instruction in customer behaviour; developing and using customer service databases; user surveys and other feedback mechanisms; strategic and performance planning and analysis; operations management; personnel supervision; and communications and marketing skills.

040108 E-Commerce

An area of study which prepares individuals to plan, manage, supervise, and market electronic business operations, products, and services provided online via the Internet. Includes instruction in business administration, information technology, information resources management, web design, computer and Internet law and policy, computer privacy and security, e-trading, insurance, electronic marketing, investment capital planning, enterprise operations, personnel supervision, contracting, and product and service networking.

040109 Transportation/Transportation Management

An area of study which prepares individuals to plan, administer and coordinate physical transportation operations, networks and systems. Includes instruction in transportation systems and technologies; traffic logistics and engineering; multi- and intermodal transportation systems; regional integration; facilities design and construction; transportation planning and finance; demand analysis and forecasting; carrier management; behavioural issues; transportation policy and law; intelligent systems; applications to aviation, maritime, rail and highway facilities and systems.

040110 Project Management

An area of study which prepares individuals to organise and manage resources (e.g. people) in such a way that the project is completed within defined scope, quality, time and cost constraints.

040199 Business Administration, Management and Operations, Other

Any other instructional area of study in business administration, management and operations not listed above.

0402 Accounting and Related Services

040201 Accounting

An area of study which prepares individuals to practice in the field of accounting and to perform related business functions. Includes instruction in accounting principles and theory, financial accounting, management accounting, legal aspects of accounting, auditing, reporting procedures, statement analysis, planning and consulting, business information systems, accounting research methods, professional standards and ethics, and applications to specific for-profit, public and non-profit organisations.

040202 Auditing

An area of study which prepares individuals, including certified accountants, to perform independent internal and external appraisals to evaluate organisational financial and operational activities, ensure compliance with laws and policies, safeguard assets, and promote effective planning and resource allocation. Includes instruction in advanced accounting, audit tools and techniques, sampling, risk and control, audit planning, audit function management, law and regulations, environmental auditing, information technology applications, professional standards and ethics, and specific industry and service sector problems.

040203 Accounting and Finance

An integrated or combined area of study in accounting and finance administration/management that prepares individuals to function as accountants and business managers.

040299 Accounting and Related Services, Other

Any area of study in accounting and related services not listed above.

0403 Business/Corporate Communications

040301 Business/Corporate Communications

An area of study which prepares individuals to function in an organisation as a composer, editor and proof reader of business or business-related communications.

0404 Economics

040401 Economics, General

An area of study which focuses on the systematic study of the production, conservation and allocation of resources in conditions of scarcity, together with the organisational frameworks related to these processes. Includes instruction in economic theory, micro- and macroeconomics, comparative economic systems, money and banking systems, international economics, quantitative analytical methods, and applications to specific industries and public policy issues.

040402 Applied Economics

An area of study which focuses on the application of economic principles and analytical techniques to the study of particular industries, activities, or the exploitation of particular resources. Includes instruction in economic theory; microeconomic analysis and modelling of specific industries, commodities; the economic consequences of resource allocation decisions; regulatory and consumer factors; and the technical aspects of specific subjects as they relate to economic analysis.

040403 Managerial Economics

An area of study which focuses on the application of economics principles to the analysis of the organisation and operation of business enterprises. Includes instruction in monetary theory, banking and financial systems, theory of competition, pricing theory, wage and salary/incentive theory, analysis of markets, and applications of econometrics and quantitative methods to the study of particular business and business problems.

040404 Econometrics and Quantitative Economics

An area of study which focuses on the systematic study of mathematical and statistical analysis of economic phenomena and problems. Includes instruction in economic statistics, optimisation theory, cost/benefit analysis, price theory, economic modelling, and economic forecasting and evaluation.

040405 Development Economics and International Development
An area of study which focuses on the systematic study of the economic development process and its application to the problems of specific countries and regions. Includes instruction in economic development theory, industrialisation, land reform, infrastructural development, investment policy, the role of governments and business in development, international development organisations, and the study of social, health, and environmental influences on economic development.

040406 International Economics
An area of study which focuses on the systematic study and analysis of international commercial behaviour and trade policy. Includes instruction in international trade theory, tariffs and quotas, commercial policy, trade factor flows, international finance and investment, currency regulation and trade exchange rates and markets, international trade negotiation, and international payments and accounting policy.

040407 Natural Resource Economics
An area of study which focuses on the application of economic concepts and methods to the analysis of issues such as air and water pollution, land use planning, waste disposal, invasive species and pest control, conservation policies, and related environmental problems. Includes instruction in cost-benefit analysis; environmental impact assessment; evaluation and assessment of alternative resource management strategies; policy evaluation and monitoring; and descriptive and analytic tools for studying how environmental developments affect the economic system.

040499 Economics, Other
Any area of study in economics not listed above.

0405 Entrepreneurial and Small Business Operations

040501 Entrepreneurial/Entrepreneurial Studies
An area of study which generally prepares individuals to perform development, marketing and management functions associated with owning and operating a business.

040502 Franchising and Franchise Operations
An area of study which prepares individuals to manage and operate franchises. Includes instruction in legal requirements, set-up costs and capitalisation requirements, financing, and applications to specific franchise opportunities.

040503 Small Business Administration/Management
An area of study which prepares individuals to develop and manage independent small businesses. Includes instruction in business administration; enterprise planning and entrepreneurship; start-up; small business operations and problems; personnel supervision; capitalisation and investment; taxation; business law and regulations; e-commerce; home business operations; and applications to specific sectors, products and services.

040599 Entrepreneurial and Small Business Operations, Other
Any area of study in entrepreneurial and small business operations not listed above.

0406 Finance and Financial Management Services

040601 Finance, General
An area of study which generally prepares individuals to plan, manage and analyse the financial and monetary aspects and performance of business enterprises, banking institutions, or other organisations. Includes instruction in principles of accounting; financial instruments; capital planning; funds acquisition; asset and debt management; budgeting; financial analysis; and investments and portfolio management.

040602 Banking and Financial Support Systems
An area of study which prepares individuals to perform a wide variety of customer services in banks, insurance agencies, savings and loan companies, and related enterprises. Includes instruction in communications and public relations skills, business equipment operation, and technical skills applicable to the methods and operations of specific financial or insurance services.

040603 Financial Planning and Services
An area of study which prepares individuals to plan and manage the financial interests and growth of individuals and institutions. Includes instruction in portfolio management, investment management, estate planning, insurance, tax planning, strategic investing and planning, financial consulting services, and client relations.

040604 International Finance
An area of study which prepares individuals to manage international finance operations and related currency transactions. Includes instruction in international banking, international monetary and financial policy, money and capital markets, foreign exchanges, risk analysis and international cash flow operations.

040605 Investments and Securities
An area of study which prepares individuals to manage assets placed in capital markets, and related technical operations. Includes instruction in security analysis, debt and equity analysis, investment strategies, securities markets, computer-assisted research, portfolio management, portfolio performance analysis, and applications to specific investment problems and business situations.

040606 Public Finance
An area of study which prepares individuals to manage the financial assets and budgets of public sector organisations. Includes instruction in public trusts and investments; the laws and procedures used to plan, prepare and administer public agency budgets; and the preparation and analysis of public budget projections and policies.

040607 Credit Management
An area of study which prepares individuals to perform and/or manage operations concerning personal and corporate credit, collateral, loan processing, and related financial agency communications. Includes instruction in general finance and banking principles, insurance, real estate, taxation, business law and regulations, principles, insurance, real estate, taxation, business law and regulations, quantitative methods, financial computer systems applications, database management, communications skills, business and office management, and professional standards and ethics.

040699 Finance and Financial Management Services, Other
Any area of study in finance and financial management services not listed above.

0407 Hospitality Administration/Management

040701 Hospitality Administration/Management, General

An area of study which prepares individuals to serve as general managers and directors of hospitality operations on a system-wide basis, including both travel arrangements and promotion and the provision of traveller facilities. Includes instruction in principles of operations in the travel and tourism, hotel and lodging facilities, food services, and recreation facilities industries, hospitality marketing strategies; hospitality planning; management and coordination of franchise and unit operations; business management; accounting and financial management; hospitality transportation and logistics; and hospitality industry policies and regulations.

040702 Tourism and Travel Services Management

An area of study which prepares individuals to manage travel related enterprises and related convention and/or tour services. Includes instruction in travel agency management, tour arranging and planning, convention and event planning, travel industry operations and procedures, tourism marketing and promotion strategies, travel counselling, travel industry law, international and domestic operations, and travel and tourism policy.

040703 Hotel/Motel Administration/Management

An area of study which prepares individuals to manage operations and facilities that provide lodging services to the travelling public. Includes instruction in hospitality industry principles; supplies purchasing, storage and control; hotel facilities design and planning; hospitality industry law; personnel management and labour relations; financial management; marketing and sales promotion; convention and event management; front desk operations; and applications to specific types of hotels and motel operations.

040704 Restaurant/Food Services Management

An area of study which prepares individuals to plan, manage, and market restaurants, food services in hospitality establishments, food service chains and franchise networks, and restaurant supply operations. Includes instruction in hospitality administration, food services management, wholesale logistics and distribution, franchise operations, business networking, personnel management, culinary arts, business planning and capitalization, food industry operations, marketing and retailing, business law and regulations, finance, and professional standards and ethics.

040799 Hospitality Administration/Management, Other

Any area of study in hospitality administration/management not listed above.

0408 Human Resource Management and Services

040801 Human Resource Management/Personnel Administration

An area of study which generally prepares individuals to manage the development of human capital in organisations, and to provide related services to individuals and groups. Includes instruction in personnel and organisation policy, human resource dynamics and flows, labour relations, sex roles, civil rights, human resources law and regulations, motivation and compensation systems, work systems, career management, employee testing and assessment, recruitment and selection, managing employee and job training programmes, and the management of human resources programmes and operations.

040802 Labour and Industrial Relations

An area of study which focuses on employee management interactions and the management of issues and disputes working conditions and worker benefit

packages, and that may prepare individuals to function as labour or personnel relations specialists. Includes instruction in labour history, policies and strategies of the labour movement, union organisation, labour-management negotiation, labour law and contract interpretation, labour economics, welfare and benefit packages, grievance procedures, and labour policy studies.

040803 Organisational Behaviour Studies
An area of study which focuses on the scientific study of the behaviour and motivations of individuals functioning in organised groups, and its application to business and industrial settings. Includes instruction in organisation theory, industrial and organisational psychology, social psychology, sociology of organisations, reinforcement and incentive theory, employee relations strategies, organisational power and influence, organisation stratification and hierarchy, leadership styles, and applications of operations research and other methodologies to organisational analysis.

040804 Labour Studies
An area of study which focuses on the study of various aspects of work, labour organisation and policy, and labour movements from the perspective of the social sciences and history. Includes instruction in labour history; political and ideological issues; worker movements and social organisations; civil rights; labour law and policy studies; labour economics; international and comparative labour studies; and applications to specific industries, groups, locations, and time periods.

040805 Human Resource Development
An area of study which prepares individuals to apply integrated training, organisational development, and career planning and counselling skills to the design, management, and evaluation of programmes to improve individual productivity, employability, and job satisfaction and organisational effectiveness. Includes instruction in psychology; organisational behaviour; principles of adult education; occupational counselling; skill testing and evaluation; programme design; consulting practice; organisational development; and applications to issues such as training, management development, customer service, and total quality management.

040899 Human Resource Management and Services, Other
Any area of study in human resource management and services not listed above.

0409 International Business

040901 International Business
An area of study which prepares individuals to manage international businesses and/or business operations. Includes instruction in the principles and processes of export sales, trade controls, foreign operations and related problems, monetary issues, international business policy, and applications to doing business in specific countries and markets.

0410 Management Sciences and Quantitative Methods

041001 Management Science, General
An area of study which focuses on the application of mathematical modelling, programming, forecasting and operations research techniques to the analysis of problems of business organisation and performance. Includes instruction in optimisation theory and mathematical techniques, stochastic and dynamic modelling, operations analysis, and the design and testing of prototype systems and evaluation models.

041002 Business Statistics
An area of study which focuses on the application of mathematical statistics to the description, analysis, and forecasting of business data. Includes instruction in statistical theory and methods, computer applications, data analysis and display, long- and short-term forecasting methods, and market performance analysis.

041003 Actuarial Science
An area of study which focuses on the mathematical and statistical analysis of risk, and their applications to insurance and other business management problems. Includes instruction in forecasting theory, quantitative and non-quantitative risk measurement methodologies, development of risk tables, secondary data analysis, and computer-assisted research methods.

041099 Management Sciences and Quantitative Methods, Other
Any area of study in management sciences and quantitative methods not listed above.

0411 Marketing

041101 Marketing/Marketing Management, General
An area of study which generally prepares individuals to undertake and manage the process of developing consumer audiences and moving products from producers to consumers. Includes instruction in buyer behaviour and dynamics, principle of marketing research, demand analysis, cost-volume and profit relationships, pricing theory, marketing campaign and strategic planning, market segments, advertising methods, sales operations and management, consumer relations, retailing, and applications to specific products and markets.

041102 Marketing Research
An area of study which prepares individuals to provide analytical descriptions of consumer behaviour patterns and market environments to marketing managers and other business decision makers. Includes instruction in survey research methods, research design, new product test marketing, exploratory marketing, consumer needs and preferences analysis, geographic analysis, and applications to specific products and markets.

041103 International Marketing
An area of study that prepares individuals to perform marketing activities in enterprises primarily engaged in exporting or importing goods and services in world markets. Includes instruction in international trade controls, foreign trade operations, locating markets, negotiation practices, monetary issues, and international public relations.

041199 Marketing, Other
Any area of study in the field of marketing not listed above.

0412 Real Estate

041201 Real Estate
An area of study which prepares individuals to develop, buy, sell, appraise, and manage real property. Includes instruction in land use development policy, real estate law, real estate marketing procedures, agency management, brokerage, property inspection and appraisal, real estate investing, leased and rental properties, commercial real estate, and property management.

0413 Taxation

041301 Taxation

An area of study which prepares individuals to provide tax advice and management services to individuals and corporations. Includes instruction in tax law and regulations, tax record systems, individual and corporate income taxation, tax planning, partnerships and fiduciary relationships, estates and trusts, property depreciation, capital gains and losses, dispositions, transfers, liquidity, valuation, and applications to specific tax problems.

0414 Insurance

041401 Insurance

An area of study which prepares individuals to manage risk in organisational settings and provide insurance and risk-aversion services to businesses, individuals, and other organisations. Includes instruction in casualty insurance and general liability, property insurance, employee benefits, social and health insurance, loss adjustment, underwriting, risk theory, and pension planning.

0415 General Sales, Merchandising and Related Marketing Operations

041501 Sales, Distribution and Marketing Operations, General

An area of study which focuses on the general process and techniques of direct wholesale and retail buying and selling operations and introduces individuals to related careers. Includes instruction in the principles of entrepreneurial economics, basic sales skills, the distribution channels for goods and services, and supervised practical application experiences.

041502 Merchandising and Buying Operations

An area of study which prepares individuals to function as professional buyers of resale products and product lines for stores, chains, and other retail enterprises. Includes instruction in product evaluation, merchandising, applicable aspects of brand and consumer research, principles of purchasing, and negotiation skills.

041503 Retailing and Retail Operations

An area of study which prepares individuals to perform operations associated with retail sales in a variety of settings. Includes instruction in over-the-counter and other direct sales operations in business settings, basic bookkeeping principles, customer service, team/staff leadership and supervision, floor management, and applicable technical skills.

041504 Selling Skills and Sales Operations

An area of study which prepares individuals to possess the skills associated with direct promotion of products and services to potential customers and to function as independent sales representatives and managers. Includes instruction in consumer psychology, image projection, public speaking and interpersonal communications, sales organisation and operations, customer relations, professional standards and ethics, and applicable technical skills.

041599 General Sales, Merchandising and Related Marketing Operations, Other

Any area of study in general sales, merchandising and related marketing operations not listed above.

0416 Specialised Sales, Merchandising and Marketing Operations

041601 Auctioneering

An area of study which prepares individuals for professional careers as auctioneers and auction managers, and for meeting applicable state licensing requirements. Includes instruction in bid calling, public speaking, ring working,

auction techniques, salesmanship skills, auction clerking and cashiering, auction advertising, working independently or with auction houses, contracts and agency, applicable sales law, and managing both general auctions and auctions specialising in commodities such as antiques, consignments, farm equipment, industrial equipment, real estate, livestock, and automobiles.

041602 Fashion Merchandising
An area of study which prepares individuals to promote product lines/brands, and organise promotional campaigns, at the wholesale level to attract retailer interest, wholesale purchasing, and supply contracts. Includes instruction in wholesaling, wholesale advertising, selling, and customer relations.

041603 Apparel and Accessories Marketing Operations
An area of study which prepares individuals to perform operations connected with the distribution and sale of apparel and accessories. Includes instruction in wholesaling and retailing; apparel technologies; distribution; customer sales and service skills; and principles of consumer research and sales forecasting.

041604 Tourism and Travel Services Marketing Operations
An area of study which prepares individuals to provide direct retail services to hotel and motel clients and customers in a variety of settings. Includes instruction in the principles of hotel/motel operations, customer sales and assistance operations and techniques, telephone operations, and basic office management.

041605 Tourism Promotion Operations
An area of study which prepares individuals to perform marketing and sales operations connected with the promotion of tourism in public and private sector settings. Includes instruction in principles of marketing research and advertising, promotional campaign organisation, media relations, and applicable technical and administrative skills.

041606 Vehicle and Vehicle Parts and Accessories Marketing Operations
An area of study which prepares individuals to perform operations connected with the distribution and sale of replacement parts and other end-use supplies in the automotive, marine, and aviation industries. Includes instruction in wholesaling and retailing; principles of vehicular technologies; storage and distribution; customer sales and service skills; and principles of consumer research and sales forecasting.

041607 Business and Personal/Financial Services Marketing Operations
An area of study which prepares individuals to perform marketing and operational tasks associated with the provision of personal and financial services. Includes instruction in banking, marketing research, advertising, promotional campaign organisation, insurance, media relations, and applicable technical and administrative skills.

041608 Special Products Marketing Operations
An area of study which prepares individuals to perform marketing and sales operations connected with the promotion of special products, including floristry, food, and home and office products. Includes instruction in principles of marketing research and advertising, promotional campaign organisation, media relations, and applicable technical and administrative skills.

041609 Hospitality and Recreation Marketing Operations
An area of study which prepares individuals to provide marketing services in the hospitality and leisure fields. Includes instruction in hospitality operations,

customer sales and assistance operations and techniques, telephone operations, basic office management, retail sports, recreation equipment, food and beverage.

041699 Specialised Sales, Merchandising and Marketing Operations, Other
Any area of study in specialised sales, merchandising and marketing operations not listed above.

0417 Parks, Recreation and Leisure Facilities Management

041701 Parks, Recreation and Leisure Facilities Management
An area of study which prepares individuals to develop and manage park facilities and other indoor and outdoor recreation and leisure facilities. Includes instruction in supervising support personnel, health and safety standards, public relations, and basic business and marketing principles.

041702 Sport and Fitness Administration and Management
An area of study which prepares individuals to apply business, coaching and physical education principles to the organisation, administration and management of athletic programmes and teams, fitness/rehabilitation facilities and health clubs, sport recreation services, and related services. Includes instruction in programme planning and development; business and financial management principles; sales, marketing and recruitment; event promotion, scheduling and management; facilities management; public relations; legal aspects of sports; and applicable health and safety standards.

041799 Parks, Recreation and Leisure Facilities Management, Other
Any area of study in parks, recreation and leisure facilities management not listed above.

0499 Business, Economics and Management Studies, Other
Any area of study in business, economics and management studies not listed above.

CESM 05: COMMUNICATION, JOURNALISM AND RELATED STUDIES

A broad area of study which focuses on how news and reports in various media are produced, used and interpreted within and across different contexts, channels and cultures, as well as on the effective application of communication knowledge and skills.

0501 Communication and Media Studies

050101 Communication Studies/Speech Communication and Rhetoric
An area of study which focuses on the scientific, humanistic, and critical study of human communication in a variety of formats, media, and contexts. Includes instruction in the theory and practice of interpersonal, group, organisational, professional, and intercultural communication; speaking and listening; verbal and nonverbal interaction; rhetorical theory and criticism; performance studies; argumentation and persuasion; technologically mediated communication; popular culture; and various contextual applications.

050102 Mass Communication/Media Studies
An area of study which focuses on the analysis and criticism of media institutions and media texts, how people experience and understand media content, and the roles of media in producing and transforming culture. Includes instruction in communications regulation, law, and policy; media history; media aesthetics, interpretation, and criticism; the social and cultural effects of mass media; cultural studies; the economics of media industries; visual and media literacy; and the psychology and behavioural aspects of media messages, interpretation, and utilisation.

050199 Communication and Media Studies, Other
Any area of study in communication and media studies not listed above.

0502 Journalism

050201 Print Journalism
Print media offerings that focus primarily on the theory and practice of gathering, processing, and delivering news, and that prepare individuals to be professional journalists and other news media professionals. Include instruction in news reporting; editing; features writing; photojournalism, including the use of still and motion photography; layout and design; journalism law and policy; professional standards and ethics; research methods; and journalism history and criticism, for a variety of news beats such as general; court; local, up to national government politics; comparative international journalism systems; sports; lifestyle; agriculture; health; education; business, etc.

050202 Broadcast Journalism
Broadcast media areas of study that focus on the methods and techniques for reporting, producing, and delivering news and news feature programmes via radio, television, and digital media; and that prepare individuals to be professional broadcast journalists, editors, producers, directors, and managers. Include instruction in the principles of broadcast technology; broadcast reporting; on- and off-camera and microphone procedures and techniques; programme, sound and digital image editing; programme design and production; media law and policy; professional standards and ethics; research methods; and journalism history and criticism, for variety of news beats such as general; court; local, up to national

government politics; comparative international journalism systems; sports; lifestyle; agriculture; health; education; business, etc.

050203 Photojournalism
An area of study which focuses on the use of still and motion photography in journalism and prepare individuals to function as news photographers and photographic editors. Include instruction in photography, journalism, camera and equipment operation and technique, news editing, digital print and video editing, media law and policy, research methods, news team field operations, and professional standards and ethics.

050204 New Media
An area of study which focuses on the use of new media in news and information production; and prepare individuals to function as new media journalists and managers. Include instruction in general journalistic principles; computer applications and technologies; design and development of digital communications; digital communication regulation, law and policy; the study of human interaction with, and use of digital media; and emerging trends and issues in digital information dissemination.

050299 Journalism, Other
Any area of study in journalism not listed above.

0503 Radio, Television and Digital Communication

050301 Radio and Television
An area of study which focuses on the theories, methods, and techniques used to plan, produce, and distribute audio and video programmes and messages, and that prepares individuals to function as staff, producers, directors, and managers of radio and television shows and media organisations. Includes instruction in media aesthetics; planning, scheduling, and production; writing and editing; performing and directing; personnel and facilities management; marketing and distribution; media regulations, law, and policy; and principles of broadcast technology.

050302 Digital Communication and Media/Multimedia
An area of study which focuses on the development, use, and regulation of new electronic communication technologies using computer applications and that prepares individuals to function as developers and managers of digital communications media. Includes instruction in the principles of computers and telecommunications technologies and processes; design and development of digital communications; marketing and distribution; digital communications regulation, law, and policy; the study of human interaction with, and use of, digital media; and emerging trends and issues.

050399 Radio, Television and Digital Communication, Other
Any area of study in radio, television and digital communication not listed above.

0504 Public Relations, Advertising and Applied Communication

050401 Organisational Communication, General
An area of study which focuses on general communication processes and dynamics within organisations. Includes instruction in the development and maintenance of interpersonal group relations within organisations; decision-making and conflict management; the use of symbols to create and maintain organisational images, missions, and values; power and politics within organisations; human interaction with computer technology; and how communications socialises and supports employees and team members.

050402 Public Relations/Image Management

An area of study which focuses on the theories and methods for managing the media image of a business, organisation, or individual and the communication process with stakeholders, constituencies, audiences, and the general public; and that prepares individuals to function as public relations assistants, technicians, and managers. Includes instruction in public relations theory; related principles of advertising, marketing, and journalism; message/image design; image management; special event management; media relations; community relations; public affairs; and internal communications.

050403 Advertising

An area of study which focuses on the creation, execution, transmission, and evaluation of commercial messages in various media intended to promote and sell products, services, and brands; and that prepares individuals to function as advertising assistants, technicians, and managers. Includes instruction in advertising theory, marketing strategy, advertising design and production methods, campaign methods and techniques, media management, related principles of business management, and applicable technical and equipment skills.

050404 Political Communication

An area of study which focuses on human and media communication in the political process and that prepares individuals to function as members of political and public affairs organisations, political campaign staffs, and related government and media entities. Includes instruction in media effects, political speaking and debating, political advertising and marketing, image management, political journalism, opinion polling, and aspects of print and broadcast media related to the production and distribution of media messages in political settings.

050405 Health Communication

An area of study which focuses on how people, individually and collectively, understand and accommodate health and illness and the role of communication and media in shaping professional health care messages and public acceptance of these messages. Includes instruction in the development and use of health related and care-related messages and media; the goals and strategies of health care promotion; relationships, roles, situations, and social structures in the context of health maintenance and promotion; and applications to disease prevention, health advocacy, and communications concerning treatments.

050499 Public Relations, Advertising and Applied Communication, Other

Any area of study in public relations, advertising and applied communication not listed above.

0505 Publishing

050501 Publishing

An area of study which focuses on the process of managing the creation, publication, and distribution of print and electronic books and other text products and prepares individuals to manage the editorial, technical, and business aspects of publishing operations. Includes instruction in product planning and design, editing, author relations, business and copyright law, publishing industry operations, contracting and purchasing, product marketing, electronic publishing and commerce, history of publishing, and professional standards and ethics.

0599 Communication, Journalism and Related Studies, Other

Any area of study in communication, journalism and related programmes not listed above.

CESM 06: COMPUTER AND INFORMATION SCIENCES

A broad area of study concerned with all facets of electronic computing, including computer systems, computer networks and computer software, as well as the classification, storage, processing and dissemination of information.

0601 Computer and Information Sciences

060101 Computer and Information Sciences, General
An area of study which focuses on computing, computer science, and information science and systems as part of a broad and/or interdisciplinary programme. Such programmes are undifferentiated as to title and content and are not to be confused with specific programmes in computer science, information science, or related support services.

060102 Artificial Intelligence and Robotics
An area of study which focuses on the symbolic inference, representation, and simulation by computers and software of human learning and reasoning processes and capabilities, and the modelling of human motor control and motions by computer-driven machinery. Includes instruction in computing theory, cybernetics, human factors, natural language processing, robot design, and applicable aspects of engineering, technology, and specific end-use applications.

060103 Information Technology
An area of study which focuses on the design of technological information systems, including computing systems, as solutions to business and research data and communications support needs. Includes instruction in the principles of computer hardware and software components, algorithms, databases, telecommunications, user tactics, application testing, and human interface design.

060199 Computer and Information Sciences, Other
Any area of study in computer and information sciences not listed above.

0602 Computer Programming

060201 Computer Programming, General
An area of study which focuses on the general writing and implementation of generic and customised programmes to drive operating systems and that generally prepares individuals to apply the methods and procedures of software design and programming to software installation and maintenance. Includes instruction in software design, low- and high-level languages and programme writing; programme customisation and linking; prototype testing; troubleshooting; and related aspects of operating systems and networks.

060202 Computer Programming, Specific Applications
An area of study which prepares individuals to apply the knowledge and skills of general computer programming to the solution of specific operational problems and customisation requirements presented by individual software users and organisational users. Includes specific programming regarding e. g. virtual reality and distributed interactive simulations, as well as training in specific types of software and its installation and maintenance.

060299 Computer Programming, Other
Any area of study in computer programming not listed above.

0603 Data Processing and Information Science

060301 Data Processing and Data Processing Technology

An area of study which prepares individuals to master and use computer software programmes and applications for inputting, verifying, organising, storing, retrieving, transforming (changing, updating, and deleting), and extracting information. Includes instruction in using various operating system configurations and in types of data entry such as word processing, spreadsheets, electronic presentations, calculators, management programmes, design programmes, database programmes, and research programmes.

060302 Information Science

An area of study which focuses on the theory, organisation, and process of information collection, transmission, and utilisation in traditional and electronic forms. Includes instruction in information classification and organisation; information storage and processing; transmission, transfer, and signalling; communications and networking; systems planning and design; human interfacing and use analysis; database development; information policy analysis; and related aspects of hardware, software, economics, social factors, and capacity.

060399 Data Processing and Information Science, Other

Any area of study in data processing and information science not listed above.

0604 Computer Business Systems Analysis

060401 Computer Business Systems Analysis

An area of study which prepares individuals to apply programming, systems and business analysis principles to the selection, implementation, and troubleshooting of customised computer and software installations across the life cycle. Includes instruction in computer hardware and software; compilation, composition, execution, and operating systems; low- and high-level languages and language programming; programming and debugging techniques; installation and maintenance testing and documentation; process and data flow analysis; user needs analysis and documentation; impact analysis; risk analysis; cost-benefit analysis; and specification design.

0605 Data Entry/Microcomputer Applications

060501 Data Entry/Microcomputer Applications, General

An area of study which generally prepares individuals to perform basic data and text entry using standard and customised software products. Includes instruction in keyboarding skills, personal computer and work station operation, reading draft texts and raw data forms, audio and tape dictation, and various interactive software programmes used for tasks such as word processing, spreadsheets, databases, and others.

060502 Word Processing

An area of study which prepares individuals to perform text typing, table construction, and document formatting tasks on personal computers at a high rate of accuracy and proficiency. Includes instruction in keyboarding skills, word processor operation, textual draft interpretation, audio and tape dictation, and specific word processing programme software.

060599 Data Entry/Microcomputer Applications, Other

Any area of study in data entry or microcomputer applications not listed above.

0606 Computer Science

060601 Computer Science

An area of study which focuses on computers, computing problems and solutions, and the design of computer systems and user interfaces from a scientific perspective. Includes instruction in the principles of computational science, and computing theory; computer hardware design; computer development and programming; and applications to a variety of end-use situations.

0607 Computer Software and Media Applications

060701 Web Page, Digital/Multimedia and Information Resources Design

An area of study which prepares individuals to apply appropriate applications, and other authoring tools to the design, editing, and publishing (launching) of documents, images, graphics, sound, and multimedia products on the World Wide Web. Includes instruction in Internet theory; web page standards and policies; elements of web page design; user interfaces; vector tools; special effects; interactive and multimedia components; search engines; navigation; morphing; e-commerce tools; and emerging web technologies.

060702 Data Modelling/Warehousing and Database Administration

An area of study which prepares individuals to design and manage the construction of databases and related software programmes and applications, including the linking of individual data sets to create complex searchable databases (warehousing) and the use of analytical search tools (mining). Includes instruction in database theory, logic, and semantics; operational and warehouse modelling; dimensionality; attributes and hierarchies; data definition; technical architecture; access and security design; integration; formatting and extraction; data delivery; index design; implementation problems; planning and budgeting; and client and networking issues.

060703 Computer Graphics

An area of study which focuses on the software, hardware, and mathematical tools used to represent, display, and manipulate topological, two-, and three-dimensional objects on a computer screen and that prepares individuals to function as computer graphics specialists. Includes instruction in graphics software and systems; digital multimedia; graphic design; graphics devices, processors, and standards; attributes and transformations; projections; surface identification and rendering; colour theory and application; and applicable geometry and algorithms.

060799 Computer Software and Media Applications, Other

Any instructional offering in computer software and media applications not listed above.

0608 Computer Systems Networking and Telecommunications

060801 Computer Systems Networking and Telecommunications

An area of study which focuses on the design, implementation, and management of linked systems of computers, peripherals, and associated software to maximise efficiency and productivity, and that prepares individuals to function as network specialists and managers at various levels. Includes instruction in operating systems and applications; systems design and analysis; networking theory and solutions; types of networks; network management and control; network and flow optimisation; security; configuring; and troubleshooting.

0609 Computer/Information Technology Administration and Management

060901 Systems Administration

An area of study which prepares individuals to manage the computer operations and control the system configurations emanating from a specific site or network hub. Includes instruction in computer hardware and software and applications; local area networking (LAN) and wide area networking (WAN); principles of information systems security; disk space and traffic load monitoring; data backup; resource allocation; and setup and takedown procedures.

060902 Systems, Networking and LAN/WAN Management

An area of study which prepares individuals to oversee and regulate the computer system and performance requirements of an entire organisation or network of satellite users. Includes instruction in performance balancing; redundancy; local area network (LAN) and wide area network (WAN) management; system migration and upgrading; outage control; problem diagnosis and troubleshooting; and system maintenance, budgeting and management.

060903 Computer and Information Systems Security

An area of study which prepares individuals to assess the security needs of computer and network systems, recommend safeguard solutions, and manage the implementation and maintenance of security devices, systems, and procedures. Includes instruction in computer architecture, programming, and systems analysis; networking; telecommunications; cryptography; security system design; applicable law and regulations; compliance; risk assessment and management; policy analysis; standards and procedures, disaster recovery planning; user access issues; incident response management and forensic investigation techniques; security awareness and training; and troubleshooting.

060904 Web/Multimedia Management

An area of study which prepares individuals to develop and maintain web servers and the hosted web pages at one or a group of web sites, and to function as designated webmasters. Includes instruction in computer systems and networks; server installation and maintenance; web page design and editing; information resources management; web policy and procedures; Internet applications of information systems security; user interfacing and usability research; and relevant management and communications skills.

060999 Computer/ Information Technology Administration and Management, Other

Any area of study in computer/information technology administration and management not listed above.

0610 Management Information Systems and Services

061001 Management Information Systems, General

An area of study which generally prepares individuals to provide and manage data systems and related facilities for processing and retrieving internal business information; select systems and train personnel; and respond to external data requests. Includes instruction in cost and accounting information systems, management control systems, personnel information systems, decision support systems, data storage and security, business systems networking, report preparation, computer facilities and equipment operation and maintenance, operator supervision and training, and management information systems policy and planning.

061002 Information Resources Management

An area of study which prepares individuals to apply principles of information technology, computer systems management, and business operations to the

planning, management, and evaluation of information services in organisations. Includes instruction in telecommunications, systems planning and integration, information policy, information security, contracting and purchasing, budgeting, information technology, operations management, human resources, communications skills, and applicable law and regulations.

061003 Knowledge Management

An area of study which focuses on the study of knowledge management in government agencies and corporations for the purpose of supporting stated organisational goals and objectives, and prepares individuals to function as information resource managers. Includes instruction in information technology, principles of computer and information systems, management information systems, applicable policy and regulations, and operations and personnel management.

061099 Management Information Systems and Services, Other

Any area of study in management information systems and services not listed above.

0699 Computer and Information Sciences, Other

Any area of study in computer and information sciences not listed above.

CESM 07: EDUCATION

A broad area of study concerned with the science and practice of educating the population.

0701 Education, General

070101 Education, General
An area of study that focuses on the general theory and practice of learning and teaching; the basic principles of educational psychology; the art of teaching; the planning and administration of educational activities; school safety and health issues; and the social foundations of education.

070102 Academic Literacy
An area of study which enables individuals to effectively listen, speak, read and write for academic understanding, to build an academic vocabulary in order to read a variety of material with comprehension for academic purposes and to produce a coherent text. This includes an understanding of metaphors and other abstract forms of language, structure, e. g. cohesion and coherence, simple calculations, different text types, as well as interpretation of diagrams, instructions, tables, graphs, and other visual information.

070199 Education, General: Other
An area of study in general education matters not listed above.

0702 Curriculum and Instruction

070201 Curriculum and Instruction
An area of study that focuses on the curriculum and related instructional processes and tools, and that may prepare individuals to serve as professional curriculum specialists. Includes instruction in curriculum theory, curriculum design and planning, instructional material design and evaluation, curriculum evaluation, and applications to specific subject matter, programmes or educational levels.

0703 Educational Management and Leadership

070301 Educational Leadership and Management, General
An area of study that focuses on the general principles and techniques of administering a wide variety of schools and other educational organisations and facilities, supervising educational personnel at the school or staff level, and that may prepare individuals as general administrators and supervisors.

070302 Management of Special Education
An area of study that prepares individuals to plan, supervise, and manage programmes for exceptional students and their parents. Includes instruction in special education theory and practice, special education programme development, evaluation and assessment in special education, relevant law and regulations, managing individual education plans, problems of low- and high-disability students, mainstreaming, special education curricula, staff management, parent education, communications and community relations, budgeting, and professional standards and ethics.

070303 Adult Education and Training Management
An area of study that focuses on the principles and techniques of administering programmes and facilities designed to serve the basic education needs of

undereducated adults, or the continuing education needs of adults seeking further or specialised instruction, and that prepares individuals to serve as administrators of such programmes. Includes instruction in adult education principles, programme and facilities planning, personnel management, community and client relations, budgeting and administration, professional standards, and applicable laws and policies.

070304 Educational, Instructional and Curriculum Supervision
An area of study that prepares individuals to supervise instructional and support personnel at the school building, facility or staff level. Includes instruction in the principles of staffing and organisation, the supervision of learning activities, personnel relations, administrative duties related to departmental or unit management, and specific applications to various educational settings and curricula.

070305 Higher Education/Higher Education Management
An area of study that focuses on the principles and practice of administration in higher education institutions, the study of higher education as an object of applied research, and which may prepare individuals to function as administrators in such settings. Includes instruction in higher education economics and finance; policy and planning studies; curriculum; faculty and labour relations; higher education law; college student services; research on higher education; institutional research; marketing and promotion; and issues of evaluation, accountability and philosophy.

070306 Early Childhood Development and Primary School Management
An area of study which focuses on educational administration at the pre-primary and primary school stages, and prepares individuals to serve as principals in schools which focus on these levels. Includes instruction in programme and facilities planning, budgeting and administration, public relations, human resources management, childhood and pre-adolescent growth and development, counselling skills, applicable law and regulations, school safety and discipline, policy studies, cultural context and professional standards and ethics.

070307 Secondary School Management
An area of study that focuses on educational administration at the secondary school (grades 8-12) levels, and prepares individuals to serve as principals of these schools. Includes instruction in secondary school education, programme and facilities planning, budgeting and administration, public relations, human resources management, adolescent growth and development, counselling skills, applicable law and regulations, school safety and discipline, policy studies, cultural context and professional standards and ethics.

070308 Middle Management and Educational System Administration
An area of study that focuses on leading and managing multi-school educational systems and school districts, and prepares individuals to serve as systems administrators and district superintendents. Includes instruction in educational administration; education of students at various levels; system planning and budgeting; educational policy; educational law and regulations; public relations; professional standards and ethics; and applications to specific issues, cultural context, and geographic locales.

070399 Educational Management and Leadership, Other
Any area of study in education management and leadership not listed above.

0704 Educational/Instructional Media Design

070401 Educational/Instructional Media Design
An area of study that focuses on the principles and techniques of creating instructional products and related educational resources in various formats o combinations such as film, video, recording, text, art, CD-ROM, computer software, virtual reality technology, and three-dimensional objects, and that prepares individuals to function as instructional media designers. Includes instruction in the techniques specific to creating in various media; the behavioural principles applicable to using various media in learning and teaching; the design, testing and production of instructional materials; and the management of educational/instructional media facilities and programmes.

0705 Educational Assessment, Evaluation and Research

070501 Educational Evaluation and Research
An area of study that focuses on the principles and procedures for generating information about educational programmes, personnel and methods, and the analysis of such information for planning purposes. Includes instruction in evaluation theory, evaluation research design and planning, administering evaluations and related data collection activities, data reporting requirements, data analysis and interpretation, and related economic and policy issues.

070502 Educational Statistics and Research Methods
An area of study that focuses on the application of statistics to the analysis and solution research problems, and the development of technical designs for research studies. Includes instruction in mathematical statistics, research design, computer applications, instrument design, research methodologies, and applications to research problems in specific education subjects.

070503 Educational Assessment, Testing and Measurement
An area of study that focuses on the principles and procedures for designing, developing, implementing and evaluating tests and other mechanisms used to measure learning, evaluate student progress, and assess the performance of specific teaching tools, strategies and curricula. Includes instruction in psychometric measurement, instrument design, test implementation techniques, research evaluation, data reporting requirements, and data analysis and interpretation.

070599 Educational Assessment, Evaluation and Research, Other
Any area of study in educational assessment, evaluation and research not listed above.

0706 International and Comparative Education

070601 International and Comparative Education
An area of study that focuses on the educational phenomena, practices and institutions within different societies and states in comparative perspective, and the study of international educational issues. Includes instruction in comparative research methods, country- or area-specific studies, cross-national studies of learning and teaching styles, international educational policy and development, and analyses of educational migration patterns and experiences.

0707 Social and Philosophical Foundations of Education

070701 Social and Philosophical Foundations of Education
An area of study that focuses on the systematic study of education as a social and cultural institution, and the educational process as an object of humanistic inquiry. Includes instruction in such subjects as the philosophy of education, history of

education, educational literature, educational anthropology, sociology of education, economics and politics of education, educational policy studies, and studies of education in relation to specific populations, issues, social phenomena, and types of work.

0708 Special Needs Education

070801 Special Needs Education, General

An area of study that focuses on the design and provision of teaching and other educational services to children or adults with special learning needs or disabilities, and that may prepare individuals to function as special education teachers. Includes instruction in diagnosing learning disabilities, developing individual education plans, teaching and supervising special education students, special education counselling, and applicable laws and policies.

070802 Education/Teaching of Individuals with Hearing Impairments/Deafness

An area of study that focuses on the design of educational services for children or adults with hearing impairments, including deafness, which adversely affect their educational performance, and that may prepare individuals to teach such students. Includes instruction in identifying students with hearing impairments, developing individual education plans, teaching and supervising hearing-impaired students, counselling, and applicable laws and policies.

070803 Education/Teaching of the Gifted and Talented

An area of study that focuses on the design of educational services for children or adults exhibiting exceptional intellectual, psychomotor or artistic talent or potential, or who exhibit exceptional maturity or social leadership talents, and that may prepare individuals to teach such students. Includes instruction in identifying gifted and talented students, developing individual education plans, teaching and supervising gifted and talented students, counselling, and applicable laws and policies.

070804 Education/Teaching of Individuals with Emotional Disturbances

An area of study that focuses on the design of educational services for children or adults with emotional conditions which adversely affect their educational performance and that may prepare individuals to teach such students. Includes instruction in identifying students with emotional disturbances, developing individual education plans, teaching and supervising emotionally disturbed students, counselling, and applicable laws and policies.

070805 Education/Teaching of Individuals with Mental Disabilities

An area of study that focuses on the design of educational services for children or adults with mental disabilities which adversely affect their educational performance and that may prepare individuals to teach such students. Includes instruction in identifying students with mental disabilities, developing individual education plans, teaching and supervising mentally handicapped students, counselling, and applicable laws and policies.

070806 Education/Teaching of Individuals with Multiple Disabilities

An area of study that focuses on the design of educational services for children or adults with multiple disabilities which adversely affect their educational performance and that may prepare individuals to teach such students. Includes instruction in identifying students with multiple disabilities, developing individual education plans, teaching and supervising multiple handicapped students, counselling, and applicable laws and policies.

070807 Education/Teaching of Individuals with Physical Health Impairments
An area of study that focuses on the design of educational services for children or adults with physical health impairments which adversely affect their educational performance and that may prepare individuals to teach such students. Includes instruction in identifying physically disabled students, developing individual education plans, teaching and supervising students with physical impairments, counselling, and applicable laws and policies.

070808 Education/Teaching of Individuals with Vision Impairments (including Blindness)
An area of study that focuses on the design of educational services for children or adults with visual disabilities which adversely affect their educational performance and that may prepare individuals to teach such students. Includes instruction in identifying students with visual impairments, developing individual education plans, teaching and supervising blind or visually handicapped students, counselling, and applicable laws and policies.

070809 Education/Teaching of Individuals with Specific Learning Disabilities
An area of study that focuses on the design of educational services for children or adults with specific learning disabilities which adversely affect their educational performance and that may prepare individuals to teach such students. Includes instruction in identifying students with specific learning disabilities, developing individual education plans, teaching and supervising students with specific learning disabilities, counselling, and applicable laws and policies.

070810 Education/Teaching of Individuals with Speech or Language Impairments
An area of study that focuses on the study and design of educational services for children or adults with speech and language impairments which adversely affect their educational performance and that may prepare individuals to teach such students. Includes instruction in identifying students with speech and language impairments, developing individual education plans, teaching and supervising students with speech disabilities, counselling, and applicable laws and policies.

070811 Education/Teaching of Individuals with Autism
An area of study that focuses on the design of educational services for children or adults with autism, and that prepares individuals to teach such students. Includes instruction in identifying students with autism, developing individual education plans, teaching and supervising autistic students, counselling, and applicable laws and policies.

070899 Special Needs Education, Other
Any area of study in special needs education not listed above.

0709 Counsellor Education and Guidance Services

070901 Counsellor Education and Guidance Services, General
An area of study that prepares individuals to apply the theory and principles of guidance and counselling to the provision of support for the personal, social, educational, and vocational development of students, and the organising of guidance services within elementary, middle and secondary educational institutions. Includes instruction in legal and professional requirements, therapeutic counsellor intervention, vocational counselling, and related sociological and psychological foundations.

0710 Teacher Education and Professional Development, Specific Levels and Methods

071001 Adult Education and Training
An area of study that prepares individuals to teach adult students in various settings, including basic and remedial education programmes, continuing education programmes, and programmes designed to develop or upgrade specific employment related knowledge and skills.

071002 Early Childhood Development and General Education and Training
An area of study that prepares individuals to teach students in pre-primary and primary school grades. Includes preparation to teach all appropriate subject material.

071003 Further Education and Training
An area of study that prepares individuals to teach students in secondary (grade 8 – grade 12) school levels. Includes preparation to teach all appropriate subject material.

071004 Teacher Education: Multiple Levels
An area of study that prepares individuals to teach students at more than one educational level.

071099 Teacher Education and Professional Development, Specific Levels and Methods, Other
Any area of study in teacher education and professional development not listed above.

0711 Teacher Education and Professional Development, Specific Subject Areas, Early Childhood Development (ECD) and General Education and Training (GET)

071101 Languages: Afrikaans (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach Afrikaans at various educational levels.

071102 Languages: English (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach English at various educational levels.

071103 Languages: IsiNdebele (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach Isindebele at various educational levels.

071104 Languages: IsiXhosa (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach IsiXhosa at various educational levels.

071105 Languages: IsiZulu (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach IsiZulu at various educational levels.

071106 Languages: Sepedi (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach Sepedi at various educational levels.

071107 Languages: Sesotho (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach Sesotho at various educational levels.

071108 Languages: Setswana (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach Setswana at various educational levels.

071109 Languages: Siswati (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach Siswati at various educational levels.

071110 Languages: Tshivenda (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach Tshivenda at various educational levels.

071111 Languages: Xitsonga (Grades R-9) – ECD and GET
An area of study which prepares individuals to teach Xitsonga at various educational levels.

071112 Mathematics – ECD and GET
An area of study which prepares individuals to teach Mathematics at various educational levels.

071113 Natural Sciences – ECD and GET
An area of study which prepares individuals to teach Natural Sciences at various educational levels.

071114 Social Sciences – ECD and GET
An area of study which prepares individuals to teach Social Sciences at various educational levels.

071115 Arts and Culture – ECD and GET
An area of study which prepares individuals to teach Arts and Culture at various educational levels.

071116 Life Orientation – ECD and GET
An area of study which prepares individuals to teach Life Orientation at various educational levels.

071117 Economic and Management Sciences – ECD and GET
An area of study which prepares individuals to teach Economic and Management Sciences at various educational levels.

071118 Physical Education – ECD and GET
An area of study which prepares individuals to teach Physical Education at various educational levels.

071119 Technology – ECD and GET
An area of study which prepares individuals to teach Technology at various educational levels.

071199 Teacher Education and Professional Development, Specific Subject Areas, Early Childhood Development and General Education and Training, Other
Any area of study in teacher education and professional development, specific subject areas, early childhood development and general education and training, not listed above.

0712 Teacher Education and Professional Development, Specific Subject Areas, Further Education and Training (FET)

071201 FET: Accounting
An area of study which prepares individuals to teach Accounting at various educational levels.

071202 FET: Agricultural Management Practices
An area of study which prepares individuals to teach Agricultural Management Practices at various educational levels.

071203 FET: Agricultural Sciences
An area of study which prepares individuals to teach Agricultural Sciences at various educational levels.

071204 FET: Agricultural Technology
An area of study which prepares individuals to teach Agricultural Technology at various educational levels.

071205 FET: Business Sciences
An area of study which prepares individuals to teach Business Sciences at various educational levels.

071206 FET: Civil Technology
An area of study which prepares individuals to teach Civil Technology at various educational levels.

071207 FET: Computer Applications Technology
An area of study which prepares individuals to teach Computer Applications Technology at various educational levels.

071208 FET: Consumer Studies
An area of study which prepares individuals to teach Consumer Studies at various educational levels.

071209 FET: Dance Studies
An area of study which prepares individuals to teach Dance Studies at various educational levels.

071210 FET: Design
An area of study which prepares individuals to teach Design at various educational levels.

071211 FET: Dramatic Arts
An area of study which prepares individuals to teach Dramatic Arts at various educational levels.

071212 FET: Economics
An area of study which prepares individuals to teach Economics at various educational levels.

071213 FET: Electrical Technology
An area of study which prepares individuals to teach Electrical Technology at various educational levels.

071214 FET: Engineering Graphics and Design
An area of study which prepares individuals to teach Engineering Graphics and Design at various educational levels.

071215 FET: Geography
An area of study which prepares individuals to teach Geography at various educational levels.

071216 FET: History
An area of study which prepares individuals to teach History at various educational levels.

071217 FET: Hospitality Studies
An area of study which prepares individuals to teach Hospitality Studies at various educational levels.

071218 FET: Information Technology
An area of study which prepares individuals to teach Information Technology at various educational levels.

071219 FET: Languages: Afrikaans
An area of study which prepares individuals to teach Afrikaans at various educational levels.

071220 FET: Languages: English
An area of study which prepares individuals to teach English at various educational levels.

071221 FET: Languages: IsiNdebele
An area of study which prepares individuals to teach IsiNdebele at various educational levels.

071222 FET: Languages: IsiXhosa
An area of study which prepares individuals to teach IsiXhosa at various educational levels.

071223 FET: Languages: IsiZulu
An area of study which prepares individuals to teach IsiZulu at various educational levels.

071224 FET: Languages: Sepedi
An area of study which prepares individuals to teach Sepedi at various educational levels.

071225 FET: Languages: Sesotho
An area of study which prepares individuals to teach Sesotho at various educational levels.

071226 FET: Languages: Setswana
An area of study which prepares individuals to teach Setswana at various educational levels.

071227 FET: Languages: Siswati
An area of study which prepares individuals to teach Siswati at various educational levels.

071228 FET: Languages: Tshivenda
An area of study which prepares individuals to teach Tshivenda at various educational levels.

071229 FET: Languages: Xitsonga
An area of study which prepares individuals to teach Xitsonga at various educational levels.

071230 FET: Life Orientation
An area of study which prepares individuals to teach Life Orientation at various educational levels.

071231 FET: Life Sciences
An area of study which prepares individuals to teach Life Sciences at various educational levels.

071232 FET: Mathematical Literacy
An area of study which prepares individuals to teach Mathematical Literacy at various educational levels.

071233 FET: Mathematics
An area of study which prepares individuals to teach Mathematics at various educational levels.

071234 FET: Mechanical Technology
An area of study which prepares individuals to teach Mechanical Technology at various educational levels.

071235 FET: Music
An area of study which prepares individuals to teach Music at various educational levels.

071236 FET: Physical Science
An area of study which prepares individuals to teach Physical Science at various educational levels.

071237 FET: Religious Studies
An area of study which prepares individuals to teach Religious Studies at various educational levels.

071238 FET: Tourism
An area of study which prepares individuals to teach Tourism at various educational levels.

071239 FET: Visual Arts
An area of study which prepares individuals to teach Visual Arts at various educational levels.

071240 FET: Physical Education
An area of study which prepares individuals to teach Physical Education at various educational levels.

071299 Teacher Education and Professional Development, Specific Subject Areas, Further Education and Training, Other
Any area of study in teacher education and professional development, specific subject areas, further education and training not listed above.

0799 Education, Other
Any area of study in education not listed above.

CESM 08: ENGINEERING

A broad area of study concerned with the application of mathematical and scientific principles to the solution of practical problems.

0801 Aerospace, Aeronautical and Astronautical Engineering

080101 Aerospace, Aeronautical and Astronautical Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of aircraft, space vehicles, and their systems; applied research on flight characteristics; and the development of systems and procedures for the launching, guidance and control of air and space vehicles.

0802 Agricultural/Biological Engineering and Bio-engineering

080201 Agricultural/Biological Engineering and Bio-engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems, equipment and facilities used to produce, process and store agricultural products; to improve the productivity of agricultural methods; and to develop improved agricultural biological systems.

0803 Architectural Engineering

080301 Architectural Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of materials, systems and methods used to construct and equip buildings intended for human habitation or other purposes.

0804 Biomedical/Medical Engineering

080401 Biomedical/Medical Engineering
An area of study which prepares individuals to apply mathematical, technological and scientific principles to the design, development and operational evaluation of biological and health systems and products such as integrated biological systems, instrumentation, medical information systems, artificial organs and prostheses, and health management and care delivery systems.

0805 Ceramic Sciences and Engineering

080501 Ceramic Sciences and Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of inorganic non-metallic materials, such as porcelains, cements industrial ceramics, ceramic superconductors, abrasives, and related materials and systems.

0806 Chemical Engineering

080601 Chemical Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems employing chemical processes, such as chemical reactors, kinetic systems, electrochemical systems, energy conservation processes, heat and mass transfer systems, and separation processes; and the applied analysis of chemical

problems such as corrosion, particle abrasion, energy loss, pollution and fluid mechanics.

0807 Civil Engineering

080701 Civil Engineering, General

An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of structural, load-bearing, material moving, transportation, water resource and material control systems, as well as environmental safety measures.

080702 Geotechnical Engineering

An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for manipulating and controlling surface and subsurface features at or incorporated into structural sites, including earth and rock moving and stabilisation, land fills, design and construction of shallow and deep foundations, control of slope instability with retaining walls and sheet piling, structural use and environmental stabilisation of wastes and by-products, underground construction, and groundwater and hazardous material containment.

080703 Structural Engineering

An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of materials and systems used in building load-bearing structures for various purposes and in different environments, including buildings, roads, rail lines, bridges, dams, conduits, offshore platforms and workstations, and other structural shells; and the analysis of structural problems such as failure, fabrication, safety and natural hazards; and the modelling of metals, plastics and their hybrids.

080704 Transportation and Highway Engineering

An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of total systems for the physical movement of people, materials and information, including general network design and planning, facilities planning, site evaluation, transportation management systems, needs projections and analysis, pavement mix design of concrete, asphalt, bitumen and aggregates, the analysis of traffic and accidents; and analysis of costs.

080705 Water Resources Engineering

An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for collecting, storing, moving, conserving and controlling surface- and groundwater, including water quality control, potable water purification, water cycle management (including waste water) management of human and industrial water requirements, water delivery, and flood control.

080799 Civil Engineering, Other

Any area of study in civil engineering not listed above.

0808 Computer Engineering

080801 Computer Engineering, General

An area of study which generally prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of computer hardware and software systems and related equipment and facilities; and the analysis of specific problems of computer applications to various tasks.

080802 Computer Hardware Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and evaluation of computer hardware and related peripheral equipment. Includes instruction in computer circuit and chip design, circuitry, computer systems design, computer equipment design, computer layout planning, testing procedures, and related computer theory and software topics.

080803 Computer Software Engineering
An area of study which prepares individuals to apply scientific and mathematical principles to the design, analysis, verification, validation, implementation and maintenance of computer software systems using a variety of computer languages. Includes instruction in discrete mathematics, probability and statistics, computer science, managerial science, and applications to complex computer systems.

080899 Computer Engineering, Other
Any area of study in computer engineering not listed above.

0809 Electrical, Electronics and Communications Engineering

080901 Electrical, Electronics and Communications Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of electrical, electronic and related communications systems and their components, including electrical power generation systems; and the analysis of problems such as superconductor, wave propagation, energy storage and retrieval, and reception and amplification.

0810 Engineering Mechanics

081001 Engineering Mechanics
An area of study which a general focus on the application of the mathematical and scientific principles of classical mechanics to the analysis and evaluation of the behaviour of structures, forces and materials in engineering problems. Includes instruction in statistics, kinetics, dynamics, kinematics, celestial mechanics, stress and failure, and electromagnetism.

0811 Engineering Physics

081101 Engineering Physics
An area of study with a general focus on the application of mathematical and scientific principles of physics to the analysis and evaluation of engineering problems. Includes instruction in high- and low-temperature phenomena, computational physics, superconductivity, applied thermodynamics, molecular and particle physics applications, and space science research.

0812 Engineering Science

081201 Engineering Science
An area of study with a general focus on the application of various combinations of mathematical and scientific principles to the analysis and evaluation of engineering problems, including applied research in human behaviour, statistics, biology, chemistry, the earth and planetary sciences, atmospherics and meteorology, and computer applications.

0813 Environmental/Environmental Health Engineering

081301 Environmental/Environmental Health Engineering
An area of study that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for controlling contained living environments and for monitoring and controlling factors in the external natural environment, including pollution control, waste and hazardous material disposal, health and safety protection, conservation, life support, and requirements for protection of special materials and related work environments.

0814 Materials Engineering

081401 Materials Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of materials and related processes used in manufacturing in a wide variety of settings; the synthesis of new industrial materials, including marrying and bonding composites; analysis of materials requirements and specifications; and related problems of system design dependent on materials factors.

0815 Mechanical and Mechatronic Engineering

081501 Mechanical Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of physical systems used in manufacturing and end-product systems used for specific uses, including machine tools, jigs and other manufacturing equipment; stationary power units and appliances; engines; self-propelled vehicles; housings and containers; hydraulic and electric systems for controlling movement; and the integration of computers and remote control with operating systems.

081502 Mechatronic Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of physical systems that rely on the integration of mechanisms, sensors, actuators, controllers and software, including process and machine control, pneumatic, hydraulic and electric systems for controlling movement; and the integration of computers and remote control with operating systems.

081599 Mechanical and Mechatronic Engineering, Other
Any area of study in mechanical and mechatronic engineering not listed above.

0816 Metallurgical Engineering

081601 Metallurgical Engineering
An area of study which prepares individuals to apply mathematical and metallurgical principles to the design, development and operational evaluation of metal components of structural, load-bearing, power, transmission and moving systems; and the analysis of engineering problems such as stress, creep, failure, alloy behaviours, environmental fluctuations, stability, electromagnetic and thermodynamic characteristics, optimal manufacturing processes, and related design considerations.

0817 Mining and Mineral Engineering

081701 Mining and Mineral Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of mineral

extraction, processing and refining systems, including open pit and shaft mines, prospecting and site analysis equipment and instruments, environmental and safety systems, mine equipment and facilities, mineral processing and refining methods and systems, and logistics and communications systems.

0818 Naval Architecture and Marine Engineering

081801 Naval Architecture and Marine Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of self-propelled, stationary or towed vessels operating on or under the water, including inland, coastal and ocean environments; and the analysis of related engineering problems such as corrosion, power transfer, pressure, hull efficiency, stress factors, safety and life support, environmental hazards and factors, and specific use requirements.

0819 Nuclear Engineering

081901 Nuclear Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for controlling and manipulating nuclear energy, including nuclear power plant design, fission reactor design, fusion reactor design, reactor control and safety systems design, power transfer systems, containment vessels and structures design; and the analysis of related engineering problems such as fission and fusion processes, human and environmental factors, construction, and operational considerations.

0820 Ocean Engineering

082001 Ocean Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems to monitor, control, manipulate and operate within coastal or ocean environments, such as underwater platforms, flood control systems, dykes, hydroelectric power systems, tide and current control and warning systems, and communications equipment; the planning and design of total systems for working and functioning in water or underwater environments; and the analysis of related engineering problems such as the action of water properties and behaviour on physical systems and people, tidal forces, current movements, and wave motion.

0821 Petroleum Engineering

082101 Petroleum Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for locating, extracting, processing and refining crude petroleum and natural gas, including prospecting instruments and equipment, mining and drilling systems, processing and refining systems and facilities, storage facilities, transportation systems, and related environmental and safety systems.

0822 Systems Engineering

082201 Systems Engineering
An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of total systems solutions to a wide variety of engineering problems, and the integration of human, physical, energy, communications, management, and information requirements as needed, as well as the application of requisite analytical methods to specific situations.

0823 Textile Sciences and Engineering

082301 Textile Sciences and Engineering

An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems to test and manufacture fibres and fibre products, both synthetic and natural; to develop new and improved fibres, textiles and their uses; and to the analysis of related engineering problems such as structural factors, molecular synthesis, chemical manufacturing, weaves, strength and stress, useful life, dyes, and applications to composite systems.

0824 Materials Science

082401 Materials Science

An area of study which focuses on the general application of mathematical and scientific principles to the analysis and evaluation of the characteristics and behaviour of solids, including internal structure, chemical properties, transport and energy flow properties, thermodynamics of solids, stress and failure factors, chemical transformation states and processes, compound materials, and research on industrial applications of specific materials.

0825 Polymer/Plastics Engineering

082501 Polymer/Plastics Engineering

An area of study which prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of synthesized macromolecular compounds and their application to specific engineering uses, including the development of industrial materials with tailored properties, the design of lightweight structural components, the use of liquid or solid polymers, and the analysis and control of polymerization processes.

0826 Construction Engineering

082601 Construction Engineering

An area of study which prepares individuals to apply scientific, mathematical, and management principles to the planning, design, and building of facilities and structures. Includes instruction in civil engineering, structural principles, site analysis, computer-assisted design, geology, evaluation and testing, materials, contracting, , graphic communications, and applicable laws and regulations.

0827 Forest Engineering

082701 Forest Engineering

An area of study which prepares individuals to apply scientific, mathematical, and forestry principles to the design of mechanical devices and processes for efficient forest management, timber production and related forest logistics systems. Includes instruction in forest products processing, forest management, forest harvesting, timber structure design, production analysis, road and bridge construction, vehicle adaptation and design, and harvesting equipment design.

0828 Industrial Engineering

082801 Industrial Engineering

An area of study which prepares individuals to apply scientific and mathematical principles to the design, improvement and installation of integrated systems of people, material, information, and energy. Includes instruction in applied mathematics, physical sciences, the social sciences, engineering analysis,

systems design, computer applications, and forecasting and evaluation methodology.

0829 Manufacturing Engineering

082901 Manufacturing Engineering
An area of study which prepares individuals to apply scientific and mathematical principles to the design, development, and implementation of manufacturing systems. Includes instruction in materials science and engineering, manufacturing processes, process engineering, assembly and product engineering, manufacturing systems design, and manufacturing competitiveness.

0830 Operations Research

083001 Operations Research
An area of study which focuses on the development and application of complex mathematical or simulation models to solve problems involving operational systems, where the system concerned is subject to human intervention. Includes instruction in advanced multivariate analysis, application of judgment and statistical tests, optimisation theory and techniques, resource allocation theory, mathematical modelling, control theory, statistical analysis, and applications to specific research problems.

0831 Surveying Engineering

083101 Surveying Engineering
An area of study which prepares individuals to apply scientific and mathematical principles to the determination of the location, elevations, and alignment of natural and manmade topographic features. Includes instruction in property line location, cadastral surveys, surveying, surface measurement, aerial and terrestrial photogrammetry, remote sensing, satellite imagery, global positioning systems, computer applications, and photographic data processing.

0832 Geological/Geophysical Engineering

083201 Geological/Geophysical Engineering
An area of study which prepares individuals to apply mathematical and geological principles to the analysis and evaluation of engineering problems, including the geological evaluation of construction sites, the analysis of geological forces acting on structures and systems, the analysis of potential natural resource recovery sites, and applied research on geological phenomena.

0899 Engineering, Other
Any area of study in engineering not listed above.

CESM 09: HEALTH PROFESSIONS AND RELATED CLINICAL SCIENCES

A broad area of study which prepares individuals to practice as professionals, technicians/technologists and assistants in the health care professions and also focuses on the study of related clinical sciences.

0901 Chiropractic

090101 Chiropractic
An area of study which prepares individuals for the independent professional practice of chiropractic, a health care and healing system based on the application of non-invasive treatments and spinal adjustments to alleviate health problems caused by vertebral misalignments affecting bodily function as derived from the philosophy of Daniel Palmer. Includes instruction in the basic medical sciences, chiropractic theory and science, postural and spinal analysis, diagnostic radiology and ultrasound, adjustment techniques, patient counselling, professional standards and ethics, and practice management.

0902 Communications Disorders Sciences and Services

090201 Communication Disorders, General
An area of study which focuses on the general study of the application of biomedical, psychological, and physical principles to the study of the genesis, development, and treatment of speech, language, hearing, and cognitive communication problems caused by disease, injury, or disability. Includes instruction in language science, hearing science, speech and voice science, biology of communication, behavioural linguistics, psychology, and applications to the development of diagnostic and rehabilitative strategies and technologies.

090202 Audiology and Hearing Sciences
An area of study which focuses on the scientific study of hearing processes and hearing loss, and that prepares individuals to diagnose hearing loss and impairments and advise patients on means to use their remaining hearing and select and fit hearing aids and other devices. Includes instruction in acoustics, anatomy and physiology of hearing, hearing measurement, auditory pathology, middle and inner ear analysis, rehabilitation therapies and assistive technologies, and paediatric and other special applications.

090203 Speech-Language Pathology
An area of study which prepares individuals to evaluate the speaking, language interpretation, and related physiological and cognitive capabilities of children and/or adults and develop treatment and rehabilitative solutions in consultation with clinicians and educators. Includes instruction in the anatomy and physiology of speech and hearing; biomechanics of swallowing and vocal articulation; communications disorders; psychology of auditory function and cognitive communication; language assessment and diagnostic techniques; and rehabilitative and management therapies.

090204 Audiology and Speech-Language Pathology
An integrated or coordinated area of study that prepares individuals as audiologists and speech-language pathologists. Includes instruction in a variety of communication disorder studies, audiology, speech pathology, language acquisition, and the design and implementation of comprehensive therapeutic and rehabilitative solutions to communications problems.

090299 Communications Disorders Sciences and Services, Other
Any area of study in communications disorders sciences and services not listed above.

0903 Dentistry, Advanced Dentistry and Oral Sciences

090301 Dentistry
An area of study which prepares individuals for the independent professional practice of dentistry/dental medicine, encompassing the evaluation, diagnosis, prevention, and treatment of diseases, disorders, and conditions of the oral cavity, maxillofacial area, and adjacent structures and their impact on the human body and health. Includes instruction in the basic biomedical sciences; occlusion; dental health and prevention; oral pathology, cariology; operative dentistry; oral radiology; principles of the various dental specialties; pain management; oral medicine; clinic and health care management, patient counselling; and professional standards and ethics.

090302 Dental Clinical Sciences, General
An integrated or undifferentiated educational area of study that generally prepares dentists in one or more of the oral sciences and advanced/graduate dentistry specialties.

090303 Advanced General Dentistry
An area of study which focuses on the advanced study of dental clinical techniques and dental practice issues. Includes instruction in subjects such as the history of dentistry; advanced dental practice management; dental ethics and jurisprudence; social and behavioural studies of dentistry; advanced restorative dentistry; oral medicine; oral radiology; advanced clinical procedures and technology; and others.

090304 Oral Biology and Oral Pathology
An area of study which focuses on the scientific study of the growth, development, diseases, healing properties, and neurological components of the oral cavity, related tissues and organs, and associated craniofacial areas. Includes instruction in oral microbiology and microanatomy, craniofacial pain, humoral aspects of disease, aetiology and histology of caries, plaque ecology; wound healing, oral disease epidemiology, oral manifestations of systemic disease, lesions, normal and pathologic physiology, and related molecular and physical studies.

090305 Dental Public Health and Education
An area of study which focuses on the scientific study of dental disease prevention and control, community dental health promotion, and prepares dentists and public health professionals to function as dental health specialists. Includes instruction in preventative dentistry; the relationship of oral disease to health and quality of life; patient and practitioner behaviour; dental epidemiology; nutrition and dental health; dental care policy and delivery; oral health profession planning and administration; biostatistics, and research methods.

090306 Dental Materials
An area of study which focuses on the scientific study of the biomaterials and inert and active compounds used in dental procedures; the development of dental materials; and their effects on the living tissues of the oral cavity and systemic bodily health. Includes instruction in materials science, dental bioengineering, biocompatibility of materials, physics and mechanics of dental materials; elastic and plastic deformation; surface bonding; and applications to fixed and removable prostheses and restorative procedures.

090307 Endodontics/Endodontology

An area of study which focuses on the advanced study of the morphology, physiology, and pathology of human dental pulp and periradicular tissues, and prepares dentists to diagnose and treat internal diseases and injuries of teeth. Includes instruction in theory and practice of endodontics; pulpal disease, relationship of endodontic conditions to other dental/oral health issues; endodontic operative technique; and patient care and management.

090308 Oral/Maxillofacial Surgery

An area of study which focuses on the advanced study of the diagnosis and intrusive and adjunctive treatment of diseases, injuries, and defects of the oral and maxillofacial regions, including functional and aesthetic aspects. Includes instruction in pharmacology, analgesia, anaesthesia, anxiety control, surgical procedures and techniques, surgical instrumentation; exodontia, oral diseases and malfunctions, soft and hard tissue pathology, dentoalveolar surgery, infection management, and prosthetic implantation.

090309 Orthodontics/Orthodontology

An area of study which focuses on the advanced study of the guidance of growing dental structures and the correction of misalignments, disproportionate growth, and traumas caused by genetics, disease, injuries, and dysfunctional behaviours. Includes instruction in malocclusion, design and fabrication of orthodontic appliances, craniofacial alignment, physiological function and analysis, cephalometrics, model analysis, space analysis, surgical orthodontics, cleft lip and palate, and treatment planning and management.

090310 Paediatric Dentistry/Paedodontics

An area of study which focuses on the advanced study of the therapeutic and preventive care of the oral health of children from birth through adolescence, and the care of adults with physical, mental, and emotional disabilities. Includes instruction in developmental oral biology, preventive medicine, diet therapy and counselling, patient management, paediatric restorative procedures, pulp therapy, trauma management, anaesthesia, treatment planning, patient management, and the treatment of handicapped patients.

090311 Periodontics/Periodontology

An area of study which focuses on the advanced study of the aetiology and treatment of diseases of the gingivae (gum tissue) and supporting bone, nerve, and vascular structures. Includes instruction in periodontium pathology, diagnostic procedures and equipment, occlusion, nutritional aspects of periodontology, surgical treatments, and patient care and management.

090312 Prosthodontics/Prosthodontology

An area of study which focuses on the advanced study of the restoration and maintenance of teeth, oral function; and aesthetic form through the use of single or compound materials, structures, and artificial devices. Includes instruction in implant dentistry, surgical procedures, denture design and fabrication, fixed and removable prosthodontics, restorative techniques, occlusion therapy and devices, geriatric dentistry, cosmetic dentistry, and tempromandibular joint dysfunction.

090399 Dentistry, Advanced Dentistry and Oral Sciences, Other

Any area of study in dentistry, advanced dentistry and oral sciences not listed above.

0904 Dental Support Services and Allied Professions

090401 Dental Assisting

An area of study which prepares individuals to proved patient care, take dental radiographs, prepare patients and equipment for dental procedures, and discharge office administrative functions under the supervision of dentists and dental hygienists. Includes instruction in medical recordkeeping, general office duties, reception and patient intake, scheduling, equipment maintenance and sterilisation, basic radiography, pre- and post-operative patient care and instruction, chair side assisting, taking tooth and mouth impressions, and supervised practice.

090402 Dental Hygiene

An area of study which prepares individuals to clean teeth and apply preventive materials; provide oral health education and treatment counselling to patients; identify oral pathologies and injuries; and manage dental hygiene practices. Includes instruction in dental anatomy, microbiology and pathology; dental hygiene theory and techniques; cleaning equipment operation and maintenance; dental materials; radiology; patient education and counselling; office management; supervised clinical training and professional standards.

090403 Dental Laboratory Technology

An area of study which prepares individuals, under the supervision of dentists, to design and construct dental prostheses such as caps, crowns, bridges, dentures, splints and orthodontic appliances. Includes instruction in dental anatomy, dental materials, ceramics technology, impressions, complete dentures, partial dentures, orthodontics, crowns and bridges, sculpture, bonding and assembly techniques, and equipment operation.

090499 Dental Services and Allied Professions, Other

Any area of study in dental services and allied professions not listed above.

0905 Health and Medical Administrative Services

090501 Health Care Administration/Management

An area of study which prepares individuals to develop, plan and manage health care operations and services within health care facilities and across health care systems. Includes instruction in planning, business management, financial management, public relations, human resources management, health care systems operation and management, health care resource allocation and policy making, health law and regulations, and applications to specific types of health care services.

090502 Hospital and Health Care Facilities Administration/Management

An area of study which prepares individuals to apply managerial principles to the administration of hospitals, clinics, nursing homes and other health care facilities. Includes instruction in facilities planning, building and operations management, business management, financial management and insurance, fundraising and marketing, public relations, human resources management and labour relations, health care facilities operations, principles of health care delivery, and applicable law and regulations.

090599 Health and Medical Administrative Services, Other

Any area of study in health and medical administrative services not listed above.

0906 Medicine

090601 Medicine

An area of study which prepares individuals for the independent professional practice of medicine, involving the prevention, diagnosis, and treatment of illnesses, injuries, and other disorders of the human body. Includes instruction in basic medical sciences, clinical medicine, examination and diagnosis, patient communications, medical ethics and law, professional standards and rotations in specialties such as internal medicine, surgery, paediatrics, obstetrics and gynaecology, orthopaedics, neurology, ophthalmology, radiology, clinical pathology, anaesthesiology, family medicine, and psychiatry.

0907 Medical Clinical Sciences

090701 Aerospace Medicine

An area of study which prepares individuals in the health care of operating crews and passengers of air and space vehicles, including support personnel. Includes instruction in special conditions of physical and psychological stress, emergency medical procedures, adaptive systems and artificial environments.

090702 Allergies and Immunology

An area of study which prepares individuals in the delivery of skilled medical care to patients suffering from allergic, asthmatic and immunologic diseases.

090703 Anaesthesiology

An area of study which prepares individuals in the application of anaesthesia for general and specialised surgery and obstetrics, critical patient care and the care of pain problems. Includes instruction in surgical procedures, current monitoring procedures, fluid therapy, pain management, diagnostic and therapeutic procedures outside the operating room and operating room safety.

090704 Cardiology

An area of study which prepares individuals in the natural history of cardiovascular disorders in adults and the diagnosis and treatment of diseases of the heart and blood vessels. Includes instruction in coronary care, diagnostic testing and evaluation, invasive and non-invasive therapies and pacemaker follow-up.

090705 Paediatric Cardiology

An area of study which prepares individuals in the diagnosis and management of diseases and disorders of the cardiovascular and cardiopulmonary systems of infants, children and adolescents. Includes instruction in related public health and community medicine issues.

090706 Chemical Pathology

An area of study which prepares individuals in the use and interpretation of chemical analyses, chemistry diagnoses and management, and the supervision of chemical pathology labs. Includes instruction in basic and applied analytical chemistry pathology, instrumentation data processing and chemical laboratory management.

090707 Neurology

An area of study which prepares individuals in the diagnosis and non-surgical treatment of diseases and abnormalities affecting the nervous system and nerve tissue in adults.

090708 Paediatric Neurology

An area of study which prepares individuals to study, prevent and manage neurological disorders of children including disorders requiring surgical, medical

and psychiatric management. Includes instruction in neurophysiology, neuropathology, neuroradiology, neuro-ophthalmology, psychiatry, rehabilitation, neurological surgery, paediatric neurodevelopment, and psycho-social support and counselling.

090709 Psychiatry
An area of study which prepares individuals in the diagnosis, treatment, and prevention of mental, emotional, behavioural and neurological disorders. Includes instruction in psychotherapy, neuropsychiatry, liaison mental health, addictions mental health, family counselling, referral, clinical diagnosis, and practice management.

`090710 Child Psychiatry
An area of study which prepares individuals in the diagnosis and treatment of mental, emotional and behavioural disorders of infancy, early childhood and adolescence.

090711 Colon and Rectal Surgery
An area of study which prepares individuals in the surgical care of patients with anorectal and colonic diseases. Also includes instruction in diagnostic and therapeutic colonoscopy.

090712 Critical Care Anaesthesiology
An area of study which prepares individuals in the administration of anaesthesia to patients with acute, chronic or long-term illness and who have multiple organ system derangements. Includes instruction in high-risk and trauma procedures, respiratory therapy and biomedical engineering.

090713 Critical Care Medicine
An area of study which prepares individuals in the management of care for patients with acutely life-threatening conditions which may include multiple organ failure. Includes instruction in the management of critical care units, emergency procedures and post-discharge care of former critical care patients.

090714 Critical Care Surgery
An area of study which prepares individuals in surgical procedures for patients with multiple trauma, critical illness, patients on life support and elderly or very young patients with disease complications.

090715 Dermatology
An area of study which prepares individuals in the delivery of specialised care to patients with diseases of the skin, hair, nails and mucous membranes. In instruction in dermatologic surgical procedures, histopathology of skin disease, cutaneous allergies, sexually transmitted diseases, and diagnostic and therapeutic techniques.

090716 Dermatopathology
An area of study which prepares individuals in the clinical and microscopic diagnosis and analysis of skin diseases and disorders. Includes instruction in laboratory administration and the supervision and training of support personnel.

090717 Diagnostic Radiology
An area of study which prepares individuals in the diagnostic use of roentgen, isotopic, ultrasound and other radiant energy imaging techniques. Includes instruction in intervention procedures, safety and medical physics, especially imaging science and technology.

090718 Emergency Medicine

An area of study which prepares individuals in the methods, procedures, and techniques of providing and managing immediate health care services. Includes instruction in the initial recognition, stabilisation, evaluation and care of the acutely ill or injured patient; patient follow-up and referral; management of prehospital care; training and supervision of emergency medical personnel; emergency department management; medicolegal and ethical issues; and disaster planning.

090719 Endocrinology and Metabolism

An area of study which prepares individuals in the diagnosis and treatment of diseases and instruction in the diagnosis and care of diabetes, hypoglycaemia, hormone disorders and sexual dysfunction.

090720 Family Medicine

An area of study which prepares individuals in the provisions of regular and long-term care to individuals and family members. Includes instruction in comprehensive care and specialist referral, basic surgery, emergency medical procedures, and diagnostic imaging and practice management.

090721 Forensic Pathology

An area of study which prepares individuals in the performance of medical autopsies, the analysis of human remains and crime scenes, and the legal follow up and responsibilities of public pathologists.

090722 Gastroenterology

An area of study which prepares individuals in the diagnosis and treatment of patients with digestive and other gastrointestinal disorders. Includes instruction in surgical procedures, cancer of the digestive system, nutrition and malnutrition and counselling the behavioural adjustment of patients with chronic problems.

090723 General Surgery

An area of study which prepares individuals in the care and treatment of diseases and disorders via invasive procedures and the aetiology, pathogenesis, diagnosis and management of physical disorders. Includes instruction in clinical and operative skills, pre-operative and post-operative care, trauma management and endoscopic techniques.

090724 Hand Surgery

An area of study which prepares individuals in the investigation, preservation and restoration by medical, surgical or physical methods of all structures of the upper extremity which directly affect the form and function of the limb, wrist and hand.

090725 Paediatric Surgery

An area of study which prepares individuals in the diagnosis, evaluation and surgical treatment of diseases, disorders and trauma in infants and children.

090726 Geriatric Medicine

An area of study which prepares individuals in the care and management of elderly patients in acute, ambulatory, community and long-term care settings, and the treatment of diseases and conditions associated with the ageing process. Includes instruction in ethical and legal issues, behavioural aspects of illness, socio-economic factors in care and rehabilitation therapies.

090727 Haematology

An area of study which prepares individuals in the mechanisms and therapy of diseases of the blood, includes patients management, diagnostic tests, biopsies and other procedures.

090728 Haematological Pathology
An area of study which prepares individuals in the laboratory and analytical procedures for studying all facets of haematological and coagulation disorders. Includes instruction in the management of haematology laboratories.

090729 Immunopathology
An area of study which prepares individuals in the diagnosis, treatment and laboratory management of immunologic diseases. In instruction in diagnostic surgical pathology, management of organ transplantation and immunotherapy.

090730 Infectious Diseases
An area of study which prepares individuals in the natural history, prevention and treatment of major infectious diseases, includes sexually transmitted diseases, and the long-term management of patients.

090731 Internal Medicine
An area of study which prepares individuals in the provision of general medical services to adult patients with a wide range of non-surgical clinical problems. In instruction in behavioural aspects of diseases, patient and family counselling and practice management.

090732 Laboratory Medicine
An area of study which prepares individuals in the principles and practices of applied medical research and related techniques, equipment, data systems and research design. Includes instruction in the management of medical laboratories in research and health care facilities.

090733 Musculoskeletal Oncology
An area of study which prepares individuals in the diagnosis and treatment of musculoskeletal neoplasm, and the application of cancer therapy regimes.

090734 Neonatal-Perinatal Medicine
An area of study which prepares individuals in the physiology of the normal neonate, the pathophysiology of the sick infant and the diagnosis and management of problems of the newborn infant.

090735 Nephrology
An area of study which prepares individuals in the pathogenesis, natural history and management of congenital and acquired diseases of the kidney and urinary tract, and renal diseases associated with systemic disorders. Includes instruction in organ transplantation and dialysis therapy.

090736 Neurological Surgery/Neurosurgery
An area of study which prepares individuals in the diagnosis, evaluation and treatment of disorders of the central, peripheral and autonomic nervous systems, including their supporting systems and vascular supply; and the evaluation and treatment of pathological processes which modify function or activity of the nervous system, including the hypophysis. Further includes instruction in critical care management and rehabilitation.

090737 Neurology
An area of study which prepares individuals in the diagnosis and non-surgical treatment of diseases and abnormalities affecting the nervous system and nerve tissue in adults.

090738 Neuropathology
An area of study which prepares individuals in the laboratory analysis of nerve tissues and the clinical diagnosis of neurological and neuromuscular diseases. Includes instruction in nerve biopsies and necropsies.

090739 Nuclear Medicine
An area of study which prepares individuals in the diagnostic, therapeutic and investigational use of radionuclides. Includes instruction in imaging and non-imaging technologies (medical physics) and the design and development of instrumentation, procedures and pharmaceutical.

090740 Nuclear Radiology
An area of study which prepares individuals in the imaging by external detection of radionuclides and/or biodistribution by external detection of radionuclides for diagnosis of disease.

090741 Obstetrics and Gynaecology
An area of study which prepares individuals in the diagnosis, prevention and treatment of diseases of women, especially those affecting the reproductive system, and the comprehensive care and treatment of women before, during and after childbirth.

090742 Occupational Medicine
An area of study which prepares individuals in the maintenance of the health of workers, the ability to perform work, the arrangements of work, and the physical and chemical environments of the workplace. In instruction in data collection and management and the administration and regulation of occupational medical services

090743 Oncology
An area of study which prepares individuals in the aetiology, epidemiology, diagnosis, treatment and therapeutic management of cancers and related clinical neoplastic diseases. Includes instruction in rehabilitation, supportive care and the administration of tumour boards.

090744 Ophthalmology
An area of study which prepares individuals in the diagnosis, prevention treatment of ophthalmic diseases and disorders, and ocular pathology procedures. Includes instruction in eye surgery.

090745 Orthopaedics/Orthopaedic Surgery
An area of study which prepares individuals in the investigation, preservation, and restoration of the form and function of the extremities, spine and associated structures by medical, surgical and physical methods.

090746 Otolaryngology
An area of study which prepares individuals in the recognition and medical management of diseases, congenital anomalies, disorders and traumas of the head and neck, the air and food passages, and the organs of hearing and speech. Includes instruction in regional surgery.

090747 Pathology
An area of study which prepares individuals in the clinical laboratory analysis of diagnosis of disease and anatomic abnormalities. Includes instruction in performing general autopsies, forensic medicine, laboratory management and quality control.

090748 Paediatric Endocrinology
An area of study which prepares individuals in the diagnosis and management of endocrine diseases and the regulation of hormone balance in childhood and adolescence.

090749 Paediatric Haemato-Oncology
An area of study which prepares individuals in the diagnosis and management of haematological disorders and malignant diseases, includes blood and bone marrow function, in infancy, childhood and adolescence.

090750 Paediatric Nephrology
An area of study which prepares individuals in the diagnosis and management of infants, children and adolescents with renal and genito-urinary problems, hypertension and disorders of body fluid physiology.

090751 Paediatric Orthopaedics
An area of study which prepares individuals in the diagnosis, surgical and non-surgical treatment and management of musculoskeletal diseases, abnormalities and trauma in infants, children and adolescents.

090752 Paediatrics
An area of study which prepares individuals in the comprehensive care and treatment of all aspects of human growth and development from conception through foetal life, infancy, childhood and adolescence, including preventive and therapeutic regimes. Includes instruction in behavioural aspects of illness, related family and community medicine issues, development paediatrics and emergency and critical care procedures.

090753 Physical and Rehabilitation Medicine
An area of study which prepares individuals in the diagnosis, aetiology, treatment, prevention and rehabilitation of neuromusculo-skeletal, cardiovascular, pulmonary and other system disorders common to patients of both sexes and all ages. Includes instruction in physical examinations, design and prescription of rehabilitation strategies and the supervision of rehabilitation teams.

090754 Plastic Surgery
An area of study which prepares individuals in the repair, replacement and reconstruction of defects of form and function of the integument and its underlying musculoskeletal system, with emphasis on the craniofacial structures, the oropharynx, the hand, the breast and the external genitalia. Includes instruction in aesthetic as well as reconstructive surgery.

090755 Preventive Medicine
An area of study which prepares individuals to manage the study and prevention of disease processes occurring in communities and defined population groups and the promotion of health-enhancing environments and behaviours. Includes instruction in biostatistics; epidemiology; health programme planning; evaluation of behavioural outcomes and medical care; recognition; assessment and control of environmental hazards; occupational health and safety; socio-cultural behavioural factors in medicine; prevention application; assessment of population and individual health needs.

090756 Public Health Medicine
An area of study which prepares individuals in the prevention, control and treatment of communicable and chronic diseases in communities and defined population groups, with emphasis on the administrative management of health care, sanitation and applied research services.

090757 Pulmonary Disease
An area of study which prepares individuals in pulmonary physiology and the treatment of lung diseases, respiratory disorders, diagnostic and therapeutic procedures, and pulmonary pathology.

090758 Radiation Oncology
An area of study which prepares individuals in the use of ionizing radiation to treat patients with cancer and other diseases. Includes instruction in treatment planning, instrument design and operation, radiation (medical) physics and radiobiology.

090759 Radio Isotopic Pathology
An area of study which prepares individuals in the use of radio nuclides in the study of body fluids, excreta, or tissues quantified outside the body. Includes instruction in laboratory management and safety, quality control, instrumentation, isotope storage and in vitro analyses.

090760 Rheumatology
An area of study which prepares individuals in the diagnosis and treatment of patients with acute and chronic rheumatic diseases, diffuse connective tissue diseases, systemic and metabolic diseases and infections and complications following surgery.

090761 Sports Medicine
An area of study which prepares individuals in the pathology and biomechanics of athletic injuries and the effects of injury on the athlete, includes both physical and psychological manifestations. Includes instruction in acute and chronic patient supervision, therapy and rehabilitation, and diagnostic procedures.

090762 Thoracic Surgery
An area of study which prepares individuals in the evaluation and surgical treatment of pulmonary, oesophageal, mediastinal, chest wall, diaphragmatic and cardiovascular disorders. Includes instruction in bronchoscopy and oesophagoscope.

090763 Urology
An area of study which prepares individuals in the diagnosis and treatment of diseases of the genitourinary tract in men and women, including renal transplantation, renal-vascular disease, oncology, infertility and endocrinology, stone disease and urodynamics.

090764 Vascular Surgery
An area of study which prepares individuals in the surgical treatment of diseases and disorders of the arterial, venous and lymphatic circulatory systems and of the heart and thoracic aorta.

090765 Adult Reconstructive Orthopaedics
An area of study which prepares individuals to undertake the study, prevention and reconstructive treatment of musculoskeletal diseases, disorders, and sequelae of injuries by medical, physical and surgical methods. Includes instruction in arthritis and related disorders of the hip, knee, shoulder, elbow, ankle and foot.

090766 Cytopathology
An area of study which prepares individuals to study, prevent and manage human diseases manifested in cells. Includes instruction in laboratory procedures,

laboratory management, quality assurance, screening, specimen collection, cytopreparation, cytometric and image analysis, and related immunological and molecular techniques.

090767 Geriatric Medicine (Internal Medicine)
An area of study which prepares individuals to manage the health care of elderly patients with a variety of medical problems on an inpatient and outpatient basis. Includes instruction in the physiology of ageing, geriatric pathophysiology, atypical presentation of illness, functional assessment, cognitive and affective assessment, and concepts of patient treatment and management in different settings.

090768 Paediatric Urology
An area of study which prepares individuals in the study, prevention, and management of congenital, childhood-acquired, and overlapping adolescent anomalies; and problems, diseases, tumours and traumas of the urologic system. Includes instruction in diagnostic and therapeutic procedures; urologic surgery; paediatric urologic disease; urodynamic analysis; nephrologic disease; neonatal and intensive care; neuropathic bladder entities; neurological tumours and trauma; renal genital anomalies; sexual development; and patient counselling and management.

090769 Orthopaedic Surgery of the Spine
An area of study which prepares individuals for the study, prevention and treatment of spinal column disease, disorders, and injuries by medical, physical and surgical methods. Includes instruction in pathogenesis and diagnosis of clinical disorders of the spine, non-operative treatment modalities, invasive modalities, basic sciences related to the musculoskeletal system, spinal degeneration, spinal neurological function, pre- and postoperative management, and patient evaluation.

090770 Palliative Medicine
An area of study which prepares individuals in medical care or treatment that concentrates on reducing the severity of disease symptoms rather than providing a cure. The goal is to prevent and relieve suffering and to improve quality of life for people facing serious, complex illness. Includes ethics, palliative care of patients with HIV/AIDS, oncologies, chronic diseases, paediatric palliative care and psychosocial issues.

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090771 Genetic Counselling
A program that prepares individuals to counsel patients and families concerning inherited genetic disorders and diseases, children with birth defects; assess risk factors and planning options associated with potential and actual inherited conditions; and serve as patient advocates and provide referral services in relation to private and public support services. Includes instruction in clinical/medical genetics, methods of genetic testing, interviewing and counselling skills, genetic and support services delivery, principles of public health, medical ethics, law and regulations, patient advocacy, and professional standards.

090799 Medical Clinical Sciences, Other
Any area of study in the medical clinical sciences not listed above.

0908 Nursing

090801 Nursing, General
An area of study which generally educates and prepares individuals in the knowledge, techniques and procedures for promoting health, providing care for sick, disabled, informed, or other individuals or groups. Includes instruction in the

administration of medication and treatments, assisting a physician during treatments and examinations, referring patients to physicians and other health specialists, and planning education for health maintenance.

090802 Nursing Administration
An area of study which prepares registered nurses to manage nursing personnel and services in hospitals and other health care delivery agencies. Includes instruction in principles of health care administration, resource and financial management, health care law and policy, medical personnel management, and managed care operations.

090803 Adult Health Nursing
An area of study which prepares registered nurses to provide general care for adult patients. Includes instruction in adult primary care, adult pathophysiology, clinical management of medication and treatments, patient assessment and education, patient referral, and planning adult health maintenance programmes.

090804 Nurse Anaesthetist
An area of study which prepares registered nurses to administer anaesthetics and provide care for patients before, during and after anaesthesia. Includes instruction in the biochemistry and physics of anaesthesia, advanced anatomy and physiology, clinical pharmacology of anaesthetics and adjunctive drugs, pain management, acute care and operating room practice, clinical technology and procedures, emergency intervention, patient assessment and education, and legal issues.

090805 Neonatal Nursing and Midwifery
An area of study which prepares registered nurses to provide prenatal care to pregnant women and to mothers and their newborn infants and to prepare registered nurses to independently deliver babies. Includes instruction in pre-delivery screening, physician referral, and the care of infants during the delivery and immediate post-delivery phases. Includes instruction in perinatal and newborn health assessment, stabilisation and care, pathophysiology of pregnancy, foetuses and the newborn, clinical management of high-risk pregnancies and newborns, perinatal and neonatal technology and clinical procedures, and patient education.

090806 Nursing Science
A research area of study that focuses on the study of advanced clinical practices, research methodologies, the administration of complex nursing services, and that prepares nurses to further the progress of nursing research through experimentation and clinical applications.

090807 Paediatric Nursing
An area of study which prepares registered nurses to provide care for children from infancy through adolescence. Includes instruction in the administration of medication and treatments, assisting physicians, patient examination and referral, and planning and delivery health maintenance and head education programmes.

090808 Psychiatric Nursing
An area of study which prepares registered nurses to promote mental health and provide nursing care to patients with mental, emotional or behavioural disorders in mental institutions or other settings. Includes instruction in psychopathology, behavioural heal, counselling and intervention strategies, psycho education, mental health assessment and dual diagnosis, stabilisation and management of psychotic illness, psychiatric care and rehabilitation, substance abuse and crisis intervention.

090809 Public Health/Community Nursing

An area of study which prepares registered nurses to promote health and provide preventive and curative nursing services for groups or communities under the supervision of a public health agency. Includes instruction in community and rural health, family therapy and intervention, disease prevention, health education, and community health assessment.

090810 Preoperative/Operating Room and Surgical Nursing

An area of study which prepares registered nurses to provide care to patients before, during and after surgery, and to provide tableside assistance to surgeons. Includes instruction in operating room safety and preparation, aseptic technique, anaesthesia, patient preparation, surgical instruments and procedures, sterilisation and disinfecting, surgical drugs and solutions, haemostasis, emergency procedures, and patient/family education.

090811 Clinical Nurse Specialist Training

An area of study which prepares registered nurses to deliver direct patient and client care in clinical settings. Includes instruction in clinical pharmacotherapeutics, advance clinical practice, holistic nursing, nursing practice and health care policy, administration and consultation services, health assessment, patient stabilisation and care, and patient education.

090812 Critical Care Nursing

An area of study which prepares registered nurses to provide specialised care to patients with life-threatening problems, including those in intensive care facilities, hospital emergency units and on life support. Includes instruction in adult, neonatal and paediatric critical care; technical skills; patient monitoring and assessment; normal and abnormal readings, and troubleshooting.

090813 Occupational and Environmental Health Nursing

An area of study which prepares registered nurses to deliver nursing health care services to workers and worker populations in clinical settings and at job sites. Includes instruction in public and community health; occupational safety and health; occupational health surveillance; case management; fitness for duty testing; medication; allergies and immunisation; emergency and ambulatory care; and applicable laws and regulations.

090814 Geriatric Nursing

An area of study which prepares registered nurses to provide nursing services to geriatric or aged individuals.

090899 Nursing, Other

Any area of study in nursing not listed above.

0909 Optometry

090901 Optometry

An area of study which prepares individuals for the independent professional practice of optometry and that focuses on the principles and techniques for examining, diagnosing and treating conditions of the visual system. Includes instruction in basic medical sciences, prescribing glasses and contact lenses, other optical aids, corrective therapies, patient counselling, physician referral, practice management, and ethics and professional standards.

0910 Osteopathic Medicine/Osteopathy

091001 Osteopathic Medicine/Osteopathy

An area of study that prepares individuals for the independent professional practice of osteopathic medicine, involving a combination of medical principles and procedures and osteopathic principles of holistic medicine and the relationship of the musculoskeletal system to general health. Includes instruction in the basic medical sciences, preventive meds, family and community medicine, medical informatics, disease systems, organ and physiologic systems, osteopathic principles and practice, osteopathic manipulative treatment, musculoskeletal and skin systems, clinical specialty rotations, medical ethics, and professional standards and practice management.

0911 Pharmacy, Pharmaceutical Sciences and Administration

091101 Pharmacy and Community Pharmacy, General

An area of study which prepares individuals for the independent or employed practice of preparing and dispensing drugs and medications in consultation with prescribing physicians and other health care professionals, and for managing pharmacy practices and counselling patients. Includes instruction in mathematics, physics, chemistry, biochemistry, anatomy, physiology, pharmacology, pharmaceutical chemistry, pharmacognosy, pharmacy practice, pharmacy administration, applicable regulations and professional standards and ethics.

091102 Pharmacy Administration and Pharmacy Policy

An area of study which prepares individuals to apply managerial, social and economic sciences to the study and management of the distribution and use of pharmaceutical products and the provision of pharmacy services. Includes instruction in research design and methods, statistics, social and organisational behaviour, pharmacoeconimics, management of pharmacy services, outcomes research, product planning and reimbursement, cost-benefit analysis, drug marketing, pharmacy and pharmacy law and regulation, risk assessment, and organisation of the health care system.

091103 Pharmaceutics

An area of study which focuses on the scientific study of the formulation of medicinal substances into product vehicles capable of being stored, transported and then introduced into the patient and behaving in ways optimal to therapeutic interaction. Includes instruction in statistics, biopharmaceutics, drug metabolism, pharmacokinetics, pharmacodynamics and physical pharmacy.

091104 Medicinal and Pharmaceutical Chemistry and Drug Design

An area of study which focuses on the application of chemistry to the study of biologically and clinically active substances, biological and pharmacological interactions, and the development of associated research methods, techniques, and clinical trial procedures. Includes instruction in organic chemistry, biochemistry, molecular graphics, rational drug design, pharmacological analysis, drug design and development, pharmacological biotechnology, chemical separations, spectroscopy, drug-host interactions, immunology, quantitative drug measurement enzymatic transformations, and metabolic excretion.

091105 Natural Products Chemistry and Pharmacognosy

An area of study which focuses on the scientific study of biologically active compounds found in naturally occurring sources such as plants, animals and microbes and their use and/or modification and medicinal substances. Includes instruction in medicinal chemistry, organic medicines, pharmacological therapeutics, pharmacokinetics, molecular biology, structural chemistry, enzymes, nucleic acids, economic botany, ethnobotany, bioprospecting, bioassay,

compound identification and isolation, mass spectrometry, and analytical instrumentation and techniques.

091106 Clinical and Industrial Drug Development
An area of study which focuses on the scientific application of pharmacology, pharmaceutics, medical chemistry and industrial management to the development, production, marketing, and distribution of pharmaceutical products. Includes instruction in industrial microbiology, plasmids, expression vectors, protein chemistry, assay and evaluation, drug synthesis and purification, quality control, industrial management, production security, patent procedures, intellectual property regulations and issues, patent enforcement and defence, and research design and testing.

091107 Pharmacoeconomics/Pharmaceutical Economics
An area of study which focuses on the application of economics and policy analysis to the study of the relationship of the pharmacy services and pharmaceutical processes and products to the health care system and their impact on health care organisations. Includes instruction in health economics, pharmacoeconomics, health care systems, health care organisation and management, statistics and biostatistics, outcomes research, health care policy, pharmacy services, and pharmaceutical industry operations.

091108 Clinical, Hospital and Managed Care Pharmacy
An area of study which prepares individuals to deliver specialised pharmacy services in clinical settings in conjunction with other health care professionals. Includes instruction in biostatistcs, clinical pharmacokinetics, biopharmaceutics, neuropharmacology, clinical pharmacy management, medical and research ethics, and applications to nuclear, nutrition support, oncology, psychiatric and therapeutic pharmacy.

091109 Industrial and Physical Pharmacy and Cosmetic Science
An area of study which focuses on the application of pharmaceutical sciences and pharmacy to the study of pharmaceuticals production and distribution, and prepares individuals to manage pharmaceutical industry operations. Includes instruction in pharmaceconomics, industrial management, operations management, preformulation evaluation, product formulation/reformulation, drug product development, stability testing, dosage design, pilot scale-up, drug marketing, quality control., drug information, and legal and regulatory affairs.

091199 Pharmacy, Pharmaceutical Sciences and Administration, Other
Any area of study in pharmacy, pharmaceutical sciences and administration not listed above.

0912 Podiatric Medicine/Podiatry

091201 Podiatric Medicine/Podiatry
An area of study which prepares individuals for the independent professional practice of podiatric medicine, involving the prevention, diagnosis and treatment of diseases, disorders, and injuries to the foot and lower extremities. Includes instruction in the basic medical sciences, anatomy of the lower extremity, functional orthopaedics, foot biomechanics, podiatric radiology, dermatology, podiatric surgery, podopaediatrics, sports medicine, physical diagnosis, emergency medicine and grammatology, practice management, and professional standards and ethics.

0913 Public Health

091301 Public Health, General

An area of study which generally prepares individuals to plan, manage, and evaluate public health care services and to function as public health officers. Includes instruction in epidemiology, biostatistics, public health principles, preventive medicine, health policy and regulations, health care services and related administrative functions, public health law enforcement, health economics and budgeting, public communications, and professional standards and ethics.

091302 Environmental Health

An area of study which focuses on the application of environmental sciences, public health, the biomedical sciences, and environmental toxicology to the study of environmental factors affecting human health and related ecological issues, and prepares individuals to function as professional environmental health specialists. Includes instruction in epidemiology, biostatistics, toxicology, public policy analysis, public management, risk assessment, communications, environmental law and applications such as air quality, food protection, radiation protection, solid and hazardous waste management, water quality, noise abatement, housing quality, and environmental control of recreational areas.

091303 Health/Medical Physics

An area of study which focuses on the application of physics, nuclear science, and engineering physics, nuclear science, and engineering physics to diagnostic, treatment, and therapeutic processes and public health protection. Includes instruction in radiation biophysics, biophysics, health effects of natural and artificially induced radiation, hazard evaluation, environmental radioactivity, nuclear physics, engineering physics, radiobiology, medical radiology, calibration and dosage theory, computer applications and medical informatics, and specific research problems.

091304 Occupational Health and Industrial Hygiene

An area of study which prepares public health specialists to monitor and evaluate health and related safety standards in industrial, commercial and governmental workplaces and facilities. Includes instruction in occupational health and safety standards and regulations; health-related aspects of various occupations and work environments; health hazard testing and evaluation; test equipment operation and maintenance; industrial toxicology; health and safety education; and the analysis and testing of job-related equipment, behaviour practices, and protective devices and procedures.

091305 Public Health Education and Promotion

An area of study which focuses on the application of educational and communications principles and methods to the promotion of preventive health measures and the education of targeted populations of health issues, and prepares individuals to function as public health educators and health promotion specialists. Includes instruction in human development, health issues across the life span, population-specific health issues, principles and methods of public health education, administration of health education campaigns and programmes, evaluation methods, public communications, and applications to specific public health subjects and issues.

091306 Community Health and Preventive Medicine

An area of study which prepares public health specialists to plan and manage health services in local community settings, includes the coordination of related support services, government agencies and private resources. Includes instruction in public health, community health services and delivery, health behaviour and cultural factors, local government operations, human services,

health communication and promotion, health services administration in local settings, environmental health, preventive and comparative medicine, epidemiology, biostatistics, family and community health, and applicable law and regulations.

091307 Maternal and Child Health
An area of study which focuses on the application of public health specialisations, public policy studies, and the social and behavioural sciences to issues of health affecting women, children and families; and further prepares individuals to function as maternal and child health specialists. Includes instruction in research design and testing, programme evaluation, public policy analysis, public finance, economics of health care, community health, family development and dynamics, women's studies, social psychology, foetal and child development, biostatistics, health education and promotion, nutrition, neonatal development, psychology and social services delivery.

091308 International Public Health/International Health
An area of study which focuses on the application of public health specialisations, the social and behavioural sciences, and policy and communications methods to the study of health problems in low, -and middle-income countries and regions, and prepares individuals to function as professional international health specialists. Includes instruction in health education and promotion, research design and evaluation, infectious disease epidemiology, international heal policy and management, public nutrition and food security, information systems, programme evaluation, medical anthropology, international communication, behavioural sciences, maternal and child health, demography and population policy, and health care finance and economics.

091309 Health Services Administration
An area of study which focuses on the application of policy analysis, public administration, business management and communications to the planning and management of health services delivery systems in the public and private sectors, and prepares individuals to function as health services administrators and managers. Includes instruction in health systems planning, public health organisation and management, public health policy formulation and analysis, business and operations management, economics of health care, organisational and health communications, marketing, human resources management, and public health law and regulations.

091399 Public Health, Other
Any area of study in public health not listed above.

0914 Rehabilitation and Therapeutic Professions

091401 Art Therapy
An area of study which prepares individuals, in consultation with other rehabilitation team members or in private practice, to use drawing and other art media forms to assess, treat, and rehabilitate individuals with mental, emotional, developmental or physical disorders. Includes instruction in art, history and theory of art therapy, art therapeutic techniques, psychopathology, patient assessment and diagnosis, cultural diversity issues, legal and ethical practice issues and professional standards and regulations.

091402 Dance Therapy
An area of study which prepares individuals, includes consultation with other rehabilitation team members or in private practice, to use the therapeutic application of creative dance movement to assist in promoting client rehabilitation and physical, emotional and mental health. Includes instruction in neuroanatomy,

personality development, movement and motor behaviour, psychology, dance, creative expression modalities, improvisation, group psychology and leadership, client evaluation and supervision, dance therapy practice, and professional standards and ethics.

091403 Music Therapy

An area of study which prepares individuals, in association with a rehabilitation team or in private practice, to use music in therapeutic relationships to address patient's physical, psychological, cognitive, emotional and social needs. Includes instruction in music theory and performance, human growth and development, biomedical sciences, abnormal psychology, disabling conditions, patient assessment and diagnosis, treatment plan development and implementation, clinical evaluation, record keeping, and professional standards and ethics.

091404 Occupational Therapy

An area of study which prepares individuals to assist patients limited by physical, cognitive, psychosocial, mental, developmental and learning disabilities, as well as adverse environmental conditions, to maximise their independent and maintain optimum health through a planned mix of acquired skills, performance motivation, environmental adaptations, assistive technologies and physical agents. Includes instruction in the basic medical sciences, psychology, sociology, patient assessment and evaluation, standardised.

091405 Orthotist/Prosthetist Training

An area of study which prepares individuals, in consultation with physicians and other therapies, to designs and fit orthoses for patients with disabling conditions of the limbs and/or spine, and prostheses for patients who have partial or total absence of a limb or significant superficial deformity. Includes instruction in biomechanics, gait analysis, pathomechanics, kinesiology, pathology, neuroanatomy, materials science, diagnostic imaging, patient analysis and measurement, impression taking, model rectification, assistive/restorative technology and engineering applications, product finishing, diagnostic and definitive fitting and alignment, power devices, postoperative management and patient counselling and follow-up.

091406 Physiotherapy

An area of study which prepares individuals to alleviate physical and functional impairments and limitations caused by injury or disease through the design and implementation of therapeutic interventions to promote fitness and health. Includes instruction in basic medical sciences, kinesiology, neuroscience, pathological physiology, analysis of dysfunction, movement dynamics, physical growth process, management of musculoskeletal disorders, clinical evaluation and measurement, client assessment and supervision, care plan development and documentation, physiotherapy modalities, rehabilitation psychology, physiotherapy administration, and professional standards and ethics.

091407 Adapted Physical Activity.

An area of study which prepares individuals to plan, organise, and direct sport, games, aquatics, exercise and recreational activities designed to promote health and wellbeing for patients who are physically, mentally or emotionally disabled.

091408 Vocational Rehabilitation Counselling

An area of study which prepares individuals to counsel disabled individuals and recovering patients in psychological, personal, social and vocational adjustment in order to have fulfilling and productive lives. Includes instruction in paid evaluation and testing, rehabilitation programme planning, patient support services and referral, job analysis, adjustment psychology, rehabilitation services provision,

patient counselling and education, applicable law and regulations, and professional standards and ethics.

091409 Biokinetics/Kinesiotherapy
An area of study which prepares individuals to treat the effects of disease, injury, and congenital disorders through therapeutic exercise and education. Includes instruction in human anatomy, human physiology, kinesiology, biomechanics, therapeutic exercise and adapted physical education, human growth and development, motor learning and performance, testing and measurement, first aid and cardiopulmonary resuscitation, psychology, rehabilitation procedures, patient assessment and management, and professional standards and ethics.

091410 Assistive/Augmentative Technology and Rehabilitation Engineering
An area of study which prepares individuals to apply the principles of psychology, engineering, and occupational therapy to the design and implementation of technological interventions and systems to promote patient rehabilitation and function. In instruction in ergonomics, seating and mobiology design, universal and near environment systems design, rehabilitation research, rehabilitation biomechanics, access and communications design, microprocessor-based technologies, neurological trauma, standards and testing, and service delivery management.

091499 Rehabilitation and Therapeutic Professions, Other
Any area of study in rehabilitation and therapeutic professions not listed above.

0915 Veterinary Medicine

091501 Veterinary Medicine
An area of study which prepares individuals for the independent professional practice of veterinary medicine, involving the diagnosis, treatment and health care management of animals and animal populations, and the prevention and management of zoonosis. Includes instruction in the veterinary basic sciences, infectious and non-infectious disease, diagnostic procedures, veterinary clinical medicine, obstetrics, radiology, anaesthesiology, surgery, toxicology, animal health and preventive medicine, clinical nutrition, practice management, and professional standards and ethics.

091502 Veterinary Nursing
An area of study which prepares individuals for the supervised professional practice of veterinary nursing, involving the treatment and health care management of animals and animal populations and the prevention and management of zoonoses. Includes instruction in the veterinary basic sciences; animal behaviour; general, medical, surgical and reproductive nursing; infectious and non-infectious diseases; diagnostic procedures; obstetrics; radiography; anaesthesiology; theatre practice; laboratory techniques; animal health and preventive medicine; clinical nutrition and professional standards and ethics.

091599 Veterinary Medicine, Other
Any area of study in veterinary medicine not listed above

0916 Veterinary Biomedical and Clinical Sciences

091601 Veterinary Sciences/Veterinary Clinical Sciences, General
An integrated area of study in one or more of the veterinary medical or clinical sciences or a programme undifferentiated as to title.

091602 Veterinary Anatomy

An area of study which focuses on the scientific study of the structure of small and large animal cellular, organ, tissue, and body systems and their relation to physiologic function, disease and therapeutic treatment. Includes instruction in histology, ultrastructure, molecular biology, biochemistry, developmental biology, neuroscience, electrophysiology, electron microscopy, computer imaging, and applications to specific species.

091603 Veterinary Anaesthesiology

An area of study which prepares veterinarians in the application of anaesthesia for general and specialists surgery and obstetrics, critical animal care and the care of pain problems. Includes instruction in surgical procedures, current monitoring procedures, fluid therapy, pain management, diagnostic and therapeutic procedures outside the operating room, and operating room safety.

091604 Veterinary Dentistry

An area of study which prepares veterinarians in the application of dental care procedures to the teeth, eating surfaces, and oral cavities of animals. Includes instruction in the prevention, diagnosis and treatment of diseases and abnormalities of animal teeth and gums and related parts of the oral cavity, and related anatomical and physiological principles.

091605 Veterinary Dermatology

An area of study which prepares veterinarians in the delivery of specialised care to animals with diseases of the skin, scales, feathers, hair, nails and mucous membranes. Includes instruction in dermatologic surgical procedures, cutaneous allergies, and diagnostic and therapeutic techniques.

091606 Veterinary Emergency and Critical Care Medicine

An area of study which trains veterinarians in the emergency treatment and management of care for animals with acutely life-threatening conditions which may include multiple organ failure. Includes instruction in the management of critical care units, emergency procedures, and long-term care of critically diseased animals.

091607 Veterinary Internal Medicine

An area of study which prepares veterinarians in the provision of general medical services to animals with a wide range of non-surgical clinical problems. Includes instruction in behavioural aspects of diseases, animal diagnosis, animal ageing, and referral procedures.

091608 Veterinary Microbiology and Immunology

An area of study which focuses on the scientific study of the microbiological causation and immunologic processes related to animal disease, prevention and treatment. Includes instruction in bacteriology, mycology, virology, immune response mechanisms, humoral and cell function, cancer defences, immune system dysfunction, immunologic diseases, parasitology, pathogenesis and disease vectors.

091609 Veterinary Nutrition

An area of study which prepares veterinarians to apply research on the chemical nature of food substances; the processes by which animals ingest, digest, absorb, transport, utilise and excrete food and nutrients; and their relation to animal behaviour and health.

091610 Veterinary Ophthalmology

An area of study which prepares veterinarians in the diagnosis, prevention, and treatment of ophthalmic diseases and disorders in animals, and related ocular pathology procedures. Includes instruction in animal eye surgery.

091611 Veterinary Pathology

An area of study which prepares veterinarians in the clinical laboratory analysis and diagnosis of diseased animal tissues and anatomic abnormalities. Includes instruction in performing general autopsies, forensic medicine, laboratory management and quality control.

091612 Veterinary Pathology and Pathobiology

An area of study which focuses on the scientific study of the development and process of disease in domestic and wild animals and applications to diagnosis, prevention and treatment. Includes instruction in pathogenesis, immunoparasitology, viral therapy, inherited metabolic diseases, environmental toxicology, anatomical and clinical pathology, necropsy and biopsy techniques, clinical laboratory analysis, pathological interpretation, and disease diagnosis.

091613 Veterinary Physiology

An area of study which focuses on the scientific study of the functional dynamics of animal biological systems and their relationship to the functional dynamics and treatment of disease and injury. Includes instruction in mammalian and non mammalian physiology, laboratory physiology, physiological responses to the environment, endocrinology, animal biotechnology, mechanisms of hormone action, organ systems, metabolism and pathophysiology.

091614 Veterinary Preventative Medicine

An area of study which prepares veterinarians in the investigation of and intervention in health and disease problems of animal and related human communities; comparative medicine; and animal public health. Includes instruction in biostatistics, epidemiology, environmental control, toxicology and the planning and administration of animal health programmes and services.

091615 Veterinary Radiology

An area of study which prepares veterinarians in the use of radiologic imaging and therapies to diagnose and treat animal diseases and health problems. Includes instruction in the use and handling of equipment for radionuclides detection and application.

091616 Theriogenology

An area of study which prepares veterinarians in the diagnosis, prevention and treatment of diseases and health problems affecting the reproductive systems of animals, and the comprehensive care and treatment of parent animals, animal foetuses and newborn or newly hatched animals throughout the gestation period.

091617 Veterinary Toxicology and Pharmacology

An area of study which focuses on the scientific study of specific environmental and food hazards affecting domestic and wild animals, and the development and action of chemical antidotes and treatments. Includes neurotoxicology, pharmacodynamics, pharmacokinetics, neuropharmacology, xenobiotics, drug resistance, pesticides, toxicological pathology, genetic and molecular toxicology, environmental toxicology, drug and toxicant analysis and evaluation, and environmental radiology.

091618 Large Animal/Food Animal and Equine Surgery and Medicine
An area of study which focuses on the scientific study of herd, work, sport and food animals. Includes instruction in equine medicine, swine and diary medicine, food animal medicine, pathophysiology, large animal diseases, large animal anaesthesiology and surgical procedures, preoperative and postoperative care, and specific medical specialties such as dentistry, ophthalmology, oncology, obstetrics/theriogenology, and orthopaedics.

091619 Small/Companion Animal Surgery and Meds
An area of study which focuses on the scientific study of the internal medicine and invasive and non-invasive treatment of companion and household animals. Includes instruction in avian medicine, pet care, companion animal medicine, pathophysiology, small animal diseases, small animal anaesthesiology and surgical procedures, preoperative and postoperative care, and specific medical specialties such as dentistry, ophthalmology, oncology, obstetrics/theriogenology, and orthopaedics.

091620 Comparative and Laboratory Animal Meds
An area of study which focuses on the scientific study of animal models of human disease and related experimental procedures, and prepares veterinarians and animal health specialists to manage the laboratory use and care of experimental animals. Includes instruction in laboratory animal husbandry, laboratory animal disease, biohazard control, gnotobiology, breeding, comparative anatomy and physiology, comparative gene mapping, protein function, physical and mathematical modelling, computer modelling, stem cell technology, colony and genetic stock management, cryopreservation, applicable regulations and bioethics.

091621 Veterinary Preventive Medicine Epidemiology and Public Health
An area of study which focuses on the study of the prevention and control of communicable animal diseases, diseases affecting humans, and prepares veterinarians to function as public health specialists. Includes instruction in animal epidemiology, biostatistics, food safety and quality assurance, food toxicology, zoonotic and infectious diseases, disease vectors and transference, production medicine, animal health, veterinary public health practice, and inspection and evaluation methods.

091622 Veterinary Infectious Diseases
An area of study which focuses on the scientific study of zoonotic infectious diseases, disease mechanisms, and prevention and treatment strategies. Includes instruction in disease pathogenesis, vector biology, mycobacterial infection, blood parasites, retroviruses, food-borne diseases, new infectious agents, ecotoxicology, mechanisms of disease transfer, antibody resistance, comparative pathology, communicable diseases, and disease prevention and eradication.

091699 Veterinary Biomedical and Clinical Sciences, Other
Any area of study in veterinary biomedical and clinical sciences not listed above.

0917 Medical Illustration and Informatics

091701 Medical Illustration
An area of study which prepares individuals to apply the principles and techniques of art and computer assisted imaging, graphics, and animation to create visual materials to facilitate the recording and dissemination of biomedical knowledge for educational, research, and clinical purposes. Includes instruction in anatomy, physiology, pathology, histology, embryology, neuroanatomy, medical terminology, artistic media and techniques, illustration techniques, three-

dimensional modelling, prosthetics, data display design, exhibit design and production, medical photography, multimedia, computer graphics and animation, digital imaging, business management, production technology, and instructional design.

091702 Medical Informatics
An area of study which focuses on the application of computer science and software engineering to medical research and clinical information technology support, and the development of advanced imaging, database, and decision systems. Includes instruction in computer science, health information systems architecture, medical knowledge structures, medical language and image processing, quantitative medical decision modelling, imaging techniques, electronic medical records, medical research systems, clinical decision support, and informatics aspects of specific research and practice problems.

091799 Medical Illustration and Informatics, Other
Any area of study in medical illustration and informatics not listed above.

0918 Dietetics and Clinical Nutrition Services

091801 Dietetics
An area of study which prepares individuals to integrate and apply the principles of the food and nutrition sciences, human behaviour, and the biomedical sciences to design and manage effective nutrition programmes in a variety of settings. Includes instruction in human nutrition; nutrient metabolism; the role of foods and nutrition in health promotion and disease prevention; planning and directing foodservice activities; diet and nutrition analysis and planning; supervision of food storage and preparation; client education; and professional standards and regulations.

091802 Clinical Nutrition
An area of study which prepares individuals to apply the principles of dietetics and biomedical and nutrition sciences to design and manage effective nutrition programmes as part of clinical treatment and therapy programmes, and to manage health care facility food services. Includes instruction in human nutrition, nutrient metabolism, the role of foods and nutrition in health promotion and disease prevention, nutrition as a treatment regime, planning and directing hospital food service programmes, diet and nutrition analysis and planning, supervision of food storage and preparation, special diets, client education, and professional standards and regulations.

091899 Dietetics and Clinical Nutrition Services, Other
Any area of study in dietetics and clinical nutrition services not listed above.

0919 Bioethics/Medical Ethics

091901 Bioethics/Medical Ethics
An area of study which focuses on the application of ethics, religion, jurisprudence, and the social sciences to the analysis of health care issues, clinical decision making, and research procedures. Includes instruction in philosophical ethics, moral value, medical sociology, theology, spirituality and health, policy analysis, decision theory, and applications to problems such as death and dying, therapeutic relationships, organ transplantation, human and animal subjects, reproduction and fertility, health care justice, cultural sensitivity, needs assessment, professionalism, conflict of interest, chaplaincy, and clinical or emergency procedures.

0920 Alternative and Complementary Medicine and Medical Systems

092001 Acupuncture

An area of study which prepares individuals for the independent professional practice of acupuncture, a Chinese system of healing based on the use of pulse diagnosis, acupuncture point selection, and needle insertion to treat imbalances in the state of bodily health or Qi. Includes instruction in basic Western medical sciences, Chinese medical anatomy and physiology, diagnostic techniques, patient observation and communication, acupuncture points and point selection, auricular and scalp acupuncture, moxibustion, acupuncture technique, acupuncture of extremities, pain management, practice management, and professional standards and ethics.

092002 Naturopathic Medicine

An area of study which prepares individuals for the independent professional practice of naturopathic medicine, an holistic therapeutic approach combining medical knowledge with non-invasive natural, homeopathic, and non-Western therapies and emphasising disease prevention, wellness, and self-healing. Includes instruction in the basic medical sciences, epidemiology, neuroscience, biostatistics, public and community health, laboratory and clinical diagnosis, pharmacognosy, botanical medicine, homeopathy, principles of Oriental medicine and Ayurveda, manipulative therapy, naturopathic therapeutics, therapeutic nutrition, case analysis and management, philosophy of naturopathy, patient counselling, practice management, and professional standards and ethics.

092003 Homeopathic Medicine

An area of study which prepares individuals for the independent professional practice of homeopathic medicine, a holistic therapeutic system using naturally occurring substances in highly diluted forms to mimic symptoms of illness and trigger autoimmune responses, based on the law of similars and other principles derived from the work of Samuel Hahnemann and others. Includes instruction in anatomy, physiology, pathology, toxicology, philosophy and theory of homeopathy, case taking and case analysis, repertory, material medication, constitutional typing, proving, practice management, and professional standards and ethics.

092099 Alternative and Complementary Medicine and Medical Systems, Other

Any area of study in alternative and complementary medicine not listed above.

0921 Somatic Bodywork and Related Therapeutic Services

092101 Massage Therapy

An area of study which prepares individuals to provide relief and improved health and well-being to clients through the application of manual techniques for manipulating skin, muscles, and connective tissues. Includes instruction in Western (Swedish) massage; sports massage; myotherapy/trigger point massage; myofascial release; deep tissue massage; cranio-sacral therapy; reflexology; massage safety and emergency management; client counselling; practice management; applicable regulations; and professional standards and ethics.

092102 Somatic Bodywork Therapy

An area of study which prepares individuals to promote physical and emotional balance and well-being through the application of skilled touch principles and techniques. Includes instruction in therapeutic massage and other hands-on touch methods; anatomy and physiology; structural/functional integration and various holistic health systems (Rolfing/Structural Integration, colon hydrotherapy, Breema, Hellerwork, lymphatic drainage, Rosen Method, hydrotherapy, and

others); client counselling, practice management, and applicable regulations and professional standards.

092199 Somatic Bodywork and Related Therapeutic Services, Other
Any area of study in somatic bodywork and related therapies not listed above.

0922 Movement and Mind-Body Therapies and Education

092201 Movement Therapy and Education
An area of study which prepares individuals to use functional and expressive integration strategies to help promote somatic awareness and optimal psychophysical functioning. Includes instruction in skilled touch techniques, kinaesthetic awareness processes, movement observation, patterning, client assessment and guidance, verbal and nonverbal communication, practice management, professional standards and ethics, and specific therapeutic and educational modalities (Alexander Technique, Aston Patterning, Body-Mind Centring, Feldenkrais Method®, Laban Movement Analysis, Trager Approach, and others*).*

092202 Yoga Therapy
An area of study which prepares individuals to function as professional instructors in the spiritual and physical therapy of Yoga in private, institutional, and clinical settings. Includes instruction in the principles of Ayurveda, philosophy of Yoga, warm-up and progressive exercises, breathing exercises, meditation, Yamas and Niyamas, instructional techniques, posture adjustment, student/client counselling and assessment, advanced Yoga disciplines and styles, business practices, and professional standards and ethics.

092299 Movement and Mind-Body Therapies and Education, Other
Any area of study in mind-body therapies and education not listed above.

0923 Energy and Biologically Based Therapies

092301 Aromatherapy
An area of study which prepares individuals to provide therapeutic care through the preparation and application of extracted essential oils from plants, including flowers (botanicals), roots, berries, and bark. Includes instruction in aromatherapy history and theory, basic physiology of absorption, aromachemistry, organic chemistry, botanical taxonomy, carrier oils, essential oils, extraction methods, blending techniques, application methods, safety, client consultation and treatment planning, business management, professional standards and ethics, and applicable regulations.

092302 Herbalism
An area of study which prepares individuals to utilise the material medical and clinical practices of Western, Native American, African, Australasian, and other herbal medicine traditions in order to prevent and cure illness and temporary physical disorders. Includes instruction in basic anatomy, physiology, pathology, and nutrition; terminology and material medication; therapeutic herbalism; pharmacy; botanicals and ethnobotany; wildcrafting and harvelabeling and dispensing phytotherapy; counter indications; practice management; consultation skills; and professional standards and ethics.

092399 Energy and Biologically Based Therapies, Other
Any area of study in energy and biologically based therapies not listed above.

0924 Medical Radiologic Technology/Science (Radiography)

092401 Medical Radiologic Technology/Science (Radiography)
An area of study which prepares individuals, under the supervision of physicians, to provide medical imaging services to patients and attending health care professionals. Includes instruction in applied anatomy and physiology, patient positioning, radiographic technique, radiation biology, safety and emergency procedures, equipment operation and maintenance, quality assurance, patient education, and medical imaging/radiologic services management.

0999 Health Professions and Related Clinical Sciences, Other
Any area of study in health and related clinical sciences not listed above.

CESM 10: FAMILY ECOLOGY AND CONSUMER SCIENCES

A broad area of study that focuses on family systems and consumer sciences, including how individuals develop and function in family, work, and community settings, as well as on housing, human nutrition, apparel and textiles, and the human interface with the physical, social, emotional, and intellectual environments.

1001 Family and Consumer Sciences

100101 Family and Consumer Sciences, General
A general area of study that focuses on family and consumer sciences, including how individuals develop and function in family, work, and community settings and how they relate to their physical, social, emotional, and intellectual environments.

100102 Business Family and Consumer Sciences/Human Sciences
An area of study which focuses on the relationship between the economy and the consuming individual and family. Includes instruction in consumption theory and practice, the production and distribution of retail goods and services, and the management of business enterprises.

100103 Family and Consumer Sciences Communication
An area of study which focuses on communication of human sciences subject matter and related consumer information to a variety of audiences through print and non-print media.

100104 Consumer Merchandising/Retailing Management
An area of study which focuses on product and service promotion from the perspective of individual and family consumers and that prepares individuals to function as consumer management and marketing consultants in for-profit and non-profit enterprises. Includes instruction in applied market research; consumer behaviour; product sourcing and distribution; profitability; customer feedback and evaluation methods; promotion and retailing campaign development; and applications to specific domestic and international consumer markets.

100105 Consumer Psychology
An area of study which focuses on consumer behaviour, the diversity of consumer behaviour, consumer research and market segmentation; the impact of consumer characteristics like needs and motivation, personality, perception, learning, consumer involvement, attitudes and communication; the social and cultural context of the consumer, family relations, group dynamics, socio-economic status, culture, sub-culture, and cross-cultural considerations; consumer decision-making processes, consumer influence and the diffusion of innovations.

100199 Family and Consumer Sciences, Other
Any area of study in family and consumer sciences not listed above.

1002 Family and Consumer Economics and Related Studies

100201 Family Resource Management Studies, General
An area of study which focuses on the design and implementation of policies and processes contributing to successful individual and family resource management. Includes instruction in financial goal-setting and strategies; household income, assets, and debt management; preventing and resolving financial difficulties; and the use of relevant public resources.

100202 Consumer Economics
An area of study which focuses on the application of micro- and macro-economic theory to consumer behaviour and individual and family consumption of goods and services. Includes instruction in modelling, economic forecasting, indexing, price theory, and analysis of individual commodities and services and/or groups of related commodities and services.

100203 Consumer Services and Advocacy
An area of study which focuses on providing end-use advice and representational services to individuals and groups within a variety of settings, and the analytical and research techniques needed to protect consumers from unsafe, unreliable, and/or unhealthy products and services. Includes instruction in consumer advocacy, family management systems, ecological impacts of consumption practices, and analysing and testing product quality and safety.

100299 Family and Consumer Economics and Related Services, Other
Any area of study in family and consumer economics and related services not listed above.

1003 Foods, Nutrition and Related Services

100301 Foods, Nutrition and Wellness Studies, General
A general area of study which focuses on the role of foods and nutrition in human health and wellness. Includes instruction in nutritional care and education, the planning and provision of food services, the development of consumable food products, life-span nutrition and wellness, the principles of nutritional assessment, and food composition. Also included are food studies and cuisine.

100302 Human Nutrition
An area of study which focuses on the relationships between food consumption and human development and health. Includes instruction in the cellular and molecular processes of food processing in the human body, related metabolic processes, the relationship of food and nutrition to disease, and nutritional needs across the life span.

100303 Food Service Systems Administration/Management
An area of study which focuses on the principles and practices relating to the administration of food service systems in institutional settings, and that prepares individuals to manage such operations in public and private facilities. Includes instruction in human nutrition, food safety, the design and organisation of food service systems, purchasing, personnel management, and related business practices.

100399 Foods, Nutrition and Related Services, Other
Any area of study in foods, nutrition and related services not listed above.

1004 Housing and Human Environments

100401 Housing and Human Environments, General
An area of study which focuses on the behavioural, social, economic, functional, and aesthetic aspects of housing, interiors, and other built environments. Includes instruction in analysing, planning, designing, furnishing, and equipping residential, work, and leisure spaces to meet user needs and the study of related public policies.

1005 Human Development, Family Studies and Related Services

100501 Human Development and Family Studies, General

A general area of study that focuses on basic human developmental and behavioural characteristics of the individual within the context of the family. Includes instruction in the conditions that influence human growth and development; strategies that promote growth and development across the life span; and the study of family systems.

100502 Adult Development and Ageing

An area of study which focuses on the characteristics of aging populations and the needs of older individuals in family and institutional settings. Includes instruction in the biological and psychological stages of aging; the provision of dependent care; serving the social, economic, and psychological needs of ageing adults; related public policy issues; and adult community resources.

100503 Family Systems

An area of study which focuses on the family as a social unit in its developmental, dynamic, comparative, and structural aspects, and the significance of the family as a system that impacts individuals and society. Includes instruction in related principles of sociology, psychology, behavioural sciences, and the humanities.

100504 Child Development

An area of study which focuses on the intellectual, social, emotional, and biological development of children and the planning and design of related human services. Includes instruction in parent-child relations; parenting practices; special needs of children; parental and environmental influences on child development; external support services; and related public policy issues.

100505 Family and Community Services

An area of study which focuses on the development and implementation of public, private, and voluntary support services for individuals, families, and localities, and that prepares individuals to function in a variety of occupations promoting family life, and family/community development. Includes instruction in family systems, human development, social services, community social and economic development, social policy, voluntary sector activities, outreach and community education.

100599 Human Development, Family Studies and Related Services, Other

Any area of study in human development, family studies and related services not listed above.

1006 Apparel and Textiles

100601 Apparel and Textiles, General

An area of study which focuses on the development of textile products and their distribution and use in terms of the psychological, social, economic, and physical needs of consumers. Includes instruction in the production, distribution, marketing, and end use of various apparel and textile products.

100602 Apparel and Textile Manufacture

An area of study which focuses on the design, development, and production of textile products and related processes and systems. Includes instruction in functional and aesthetic design, human factors research, production planning, manufacturing processes, quality assessment, and distribution systems.

100603 Apparel and Textile Marketing Management
An area of study which focuses on marketing research and management as applied to the products and services of the apparel and textile industries. Includes instruction in applicable principles of textile and apparel design and manufacturing, sales and distribution systems, domestic and international market research, profitability, consumer research, and the design and implementation of marketing campaigns.

100604 Fashion and Fabric Consultation
An area of study which prepares individuals to assist in apparel and fashion selection, style coordination, customer sales and consulting, fabric selection, clothing specifications, and contract buying activities. Includes instruction in supplying regular clothing needs or acting as a consultant for special events such as weddings.

100699 Apparel and Textiles, Other
Any area of study in apparel and textiles not listed above.

1099 Family Ecology and Consumer Sciences, Other
Any area of study in family ecology and consumer sciences not listed above.

CESM 11: LANGUAGES, LINGUISTICS AND LITERATURE

A broad area of study concerned with the structures and use in speech, writing and various other aspects of the literatures of the official languages of South Africa, as well as areas of study relating to other important languages, inter alia other African languages, Asian languages, European languages, classical languages and South African sign language.

1101 Linguistic, Comparative and Related Language Studies and Practices

110101 Linguistics
An area of study which focuses on the descriptive, historical and theoretical aspects of language, its nature, structure, varieties and development, including especially the sound system (phonology), grammatical system (morphology and syntax), lexical system (vocabulary and semiology), and writing system.

110102 Comparative Literature
An area of study which focuses on two or more literary traditions in the original languages or in translation. Includes instruction in comparative linguistics, applicable indigenous and foreign languages and literature, literary criticism, and applications to genre, period, national and textural studies as well as literary forms such as poetry, prose and drama.

110103 Speech and Rhetorical Studies
An area of study which focuses on human interpersonal communication from the scientific/behavioural and humanistic perspectives. Includes instruction in the theory and physiology of speech, the history of discourse, the structure and analysis of argument and types of public speech, the social role of speech, oral interpretation of literature, interpersonal interactions, and the relation of speech to nonverbal and other forms of message exchanges.

11 0104 Language Practice
An area of study which focuses on language interpretation and translation, document design, copywriting, text editing, lexicography, terminology, language management and (natural) language technology.

110199 Linguistics, Comparative and Related Language Studies and Practices, Other
Any area of study in linguistics, comparative and related language studies and practices not listed above.

1102 English Language and Literature

110201 English Language and Literature, General
A general area of study that focuses on the English language, including its history, structure and related communications skills; and the literature and culture of English-speaking peoples.

110202 English Composition
An area of study which focuses on the principles of English vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

110203 English Creative Writing
An area of study which focuses on the process and techniques of original English composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

110204 English Literature
An area of study which focuses on the literatures and literary developments of mother tongue English speakers, from the origins of the English language to the present. Includes instruction in period and genre studies, author studies, country and regional specialisations, literary criticism, and the study of folkloric traditions.

110205 Technical and Business Writing in the English Language
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in English.

110299 English Language and Literature, Other
Any area of study in English language and literature not listed above.

1103 Afrikaans Language and Literature

110301 Afrikaans Language and Literature, General
A general area of study which focuses on the Afrikaans language, including its history, structure and related communications skills; and the literature and culture of Afrikaans-speaking peoples.

110302 Afrikaans Composition
An area of study which focuses on the principles of Afrikaans vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

110303 Afrikaans Creative Writing
An area of study that focuses on the process and techniques of original Afrikaans composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

110304 Afrikaans Literature
An area of study which focuses on the literatures and literary developments of mother tongue Afrikaans speakers, from the origins of the Afrikaans language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

110305 Technical and Business Writing in Afrikaans
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in Afrikaans.

110399 Afrikaans Language and Literature, Other
Any area of study in Afrikaans language and literature not listed above.

1104 IsiNdebele Language and Literature

110401 IsiNdebele Language and Literature, General
A general area of study which focuses on the IsiNdebele language, including its history, structure and related communications skills; and the literature and culture of IsiNdebele-speaking peoples.

110402 IsiNdebele Composition
An area of study which focuses on the principles of IsiNdebele vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

110403 IsiNdebele Creative Writing
An area of study which focuses on the process and techniques of original IsiNdebele composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

110404 IsiNdebele Literature
An area of study which focuses on the literatures and literary developments of mother tongue IsiNdebele speakers, from the origins of the IsiNdebele language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

110405 Technical and Business Writing in IsiNdebele
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in IsiNdebele.

110499 IsiNdebele Language and Literature, Other
Any area of study in IsiNdebele language and literature not listed above.

1105 Sepedi Language and Literature

110501 Sepedi Language and Literature, General
A general area of study that focuses on the Sepedi language, including its history, structure and related communications skills; and the literature and culture of Sepedi speaking peoples.

110502 Sepedi Composition
An area of study which focuses on the principles of Sepedi vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

110503 Sepedi Creative Writing
An area of study which on the process and techniques of original Sepedi composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

110504 Sepedi Literature
An area of study which focuses on the literatures and literary developments of mother tongue Sepedi speakers, from the origins of the Sepedi language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

110505 Technical and Business Writing in Sepedi
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in Sepedi.

110599 Sepedi Language and Literature, Other
Any area of study in Sepedi language and literature not listed above.

1106 Sesotho Language and Literature

110601 Sesotho Language and Literature, General
A general area of study that focuses on the Sesotho language, including its history, structure and related communications skills; and the literature and culture of Sesotho-speaking peoples.

110602 Sesotho Composition
An area of study which focuses on the principles of Sesotho vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

110603 Sesotho Creative Writing
An area of study which focuses on the process and techniques of original Sesotho composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

11604 Sesotho Literature
An area of study which focuses on the literatures and literary developments of mother tongue Sesotho speakers, from the origins of the Sesotho language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

110605 Technical and Business Writing in Sesotho
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in Sesotho.

110699 South Sesotho Language and Literature, Other
Any area of study in Sesotho language and literature not listed above.

1107 SiSwati Language and Literature

110701 SiSwati Language and Literature, General
A general programme that focuses on the SiSwati language, including its history, structure and related communications skills; and the literature and culture of SiSwati-speaking peoples.

110702 SiSwati Composition
An area of study which focuses on the principles of SiSwati vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

110703 SiSwati Creative Writing
An area of study which focuses on the process and techniques of original SiSwati composition in various literary forms such as the short story, poetry, the novel,

and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

110704 SiSwati Literature
An area of study which focuses on the literatures and literary developments of mother tongue SiSwati speakers, from the origins of the SiSwati language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

110705 Technical and Business Writing in SiSwati
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in SiSwati.

110799 SiSwati Language and Literature, Other
Any area of study in SiSwati language and literature not listed above.

1108 Xitsonga Language and Literature

110801 Xitsonga Language and Literature, General
A general area of study that focuses on the Xitsonga language, including its history, structure and related communications skills; and the literature and culture of Xitsonga-speaking peoples.

110802 Xitsonga Composition
An area of study which focuses on the principles of Xitsonga vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

110803 Xitsonga Creative Writing
An area of study which focuses on the process and techniques of original XItsonga composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

110804 Xitsonga Literature
An area of study which focuses on the literatures and literary developments of mother tongue Xitsonga speakers, from the origins of the Xitsonga language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

110805 Technical and Business Writing in Xitsonga
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in Xitsonga.

110899 Xitsonga Language and Literature, Other
Any area of study in Xitsonga language and literature not listed above.

1109 Setswana Language and Literature

110901 Setswana Language and Literature, General
A general area of study that focuses on the Setswana language, including its history, structure and related communications skills; and the literature and culture of Setswana-speaking peoples.

110902 Setswana Composition
An area of study which focuses on the principles of Setswana vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

110903 Setswana Creative Writing
An area of study which focuses on the process and techniques of original Setswana composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

110904 Setswana Literature
An area of study which focuses on the literatures and literary developments of mother tongue Setswana speakers, from the origins of the Setswana language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

110905 Technical and Business Writing in Setswana
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in Setswana.

110999 Setswana Language and Literature, Other
Any area of study in Setswana language and literature not listed above.

1110 Tshivenda Language and Literature

111001 Tshivenda Language and Literature, General
An area of study which that focuses on the Tshivenda language, including its history, structure and related communications skills; and the literature and culture of Tshivenda-speaking peoples.

111002 Tshivenda Composition
An area of study which focuses on the principles of Tshivenda vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

111003 Tshivenda Creative Writing
An area of study which focuses on the process and techniques of original Tshivenda composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

111004 Tshivenda Literature
An area of study which focuses on the literatures and literary developments of mother tongue Tshivenda speakers, from the origins of the Tshivenda language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

111005 Technical and Business Writing in Tshivenda
An area of study that focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in Tshivenda.

111099 Tshivenda Language and Literature, Other
Any area of study in Tshivenda language and literature not listed above.

1111 IsiXhosa Language and Literature

111101 IsiXhosa Language and Literature, General
An area of study which focuses on the IsiXhosa language, including its history, structure and related communications skills; and the literature and culture of IsiXhosa-speaking peoples.

111102 IsiXhosa Composition
An area of study which focuses on the principles of IsiXhosa vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

111103 IsiXhosa Creative Writing
An area of study which focuses on the process and techniques of original IsiXhosa composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

111104 IsiXhosa Literature
An area of study which focuses on the literatures and literary developments of mother tongue isiXhosa speakers, from the origins of the IsiXhosa language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

111105 Technical and Business Writing in IsiXhosa
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in IsiXhosa.

111199 IsiXhosa Language and Literature, Other
Any area of study in IsiXhosa language and literature not listed above.

1112 IsiZulu Language and Literature

111201 IsiZulu Language and Literature, General
A general area of study that focuses on the IsiZulu language, including its history, structure and related communications skills; and the literature and culture of IsiZulu-speaking peoples.

111202 IsiZulu Composition
An area of study which focuses on the principles of IsiZulu vocabulary, grammar, morphology, syntax and semantics, as well as techniques of selecting, developing, arranging, combining and expressing ideas in appropriate written forms.

111203 IsiZulu Creative Writing
An area of study which focuses on the process and techniques of original IsiZulu composition in various literary forms such as the short story, poetry, the novel, and others. Includes instruction in technical and editorial skills, criticism, and the marketing of finished manuscripts.

111204 IsiZulu Literature
An area of study which focuses on the literatures and literary developments of mother tongue IsiZulu speakers, from the origins of the IsiZulu language to the present. Includes instruction in period and genre studies, author studies, literary criticism, and the study of folkloric traditions.

111205 Technical and Business Writing in IsiZulu
An area of study which focuses on the theory, methods and skills needed for writing and editing scientific, technical and business papers and monographs in IsiZulu.

111299 IsiZulu Language and Literature, Other
Any area of study in IsiZulu language and literature not listed above.

1113 Other African Languages and Literature

111301 Other African Languages and Literature
African languages and literatures not included in those listed above.

1114 Dutch Language and Literature

111401 Dutch Language and Literature
An area of study which focuses on the Dutch language, including its history, structure and related communications skills; and the literature and culture of Dutch-speaking peoples.

1115 European Languages and Literature (excluding Dutch)

111501 European Languages and Literature (excluding Dutch)
Any area of study in modern European languages, literatures and linguistics

1116 Asian Languages and Literature

111601 Asian Languages and Literature
Any area of study in modern Asian languages, literatures and linguistics.

1117 Middle/Near Eastern and Semitic Languages and Literature

111701 Semitic Languages and Literature
Any area of study which focuses on one or more of the Semitic languages of Western Asia, North Africa and Europe. Includes instruction in philology, linguistics, dialects and pidgins, literature, and applications to business, science/technology and other settings.

111702 Arabic Language and Literature

An area of study which focuses on the Arabic language as spoken by peoples from earliest times to the present. Includes instruction in Arabic philology, classical Arabic, Modern Standard Arabic, Arabic dialects, and applications to business, science/technology, and other settings.

111703 Ancient Near Eastern and Biblical Languages and Literatures

An area of study which focuses on one or more of the extinct Semitic and/or Non-Semitic languages spoken in the ancient Near East, including those used to write historical Jewish and Christian religious texts. Includes instruction in languages such as Egyptian/Coptic, Sumerian, Akkadian, Babylonian, Assyrian, Aramaic, Cannanite, Phonecian, Samarian, Ugaritic, Syriac, Mandean, Hattic, Elamite, Hurrian, Hittite, Urartian, Lydian, Luwian, Lycian, Palaic, Sabaean/South Arabian, and other associated languages, plus allied disciplines such asphilology, epigraphy, papyrology, numismatics, and textual studies.

111799 Middle/Near Eastern and Semitic Languages and Literature, Other

An area of study in Middle/Near Eastern Semitic languages and literature not listed above

1118 Classics and Classical Languages and Literature

111801 Classics and Classical Languages and Literature

An area of study which focuses on the literary culture of the ancient Graeco-Roman world and the Greek and Latin languages and their development prior to the fall of the Roman empire.

1119 South African Sign Language (SASL)

111901 South African Sign Language (SASL)

An area of study which focuses on SASL as a national standard language. The language consists of a variety of visual communication methods expressed through the hands. Includes the structure, the grammar and the conversation skills of SASL, as well as the history and culture of SASL and the Deaf Community.

1120 Comparative African Languages and Literatures

112001 Comparative African Languages and Literatures

A general area of study which focuses on the comparative investigation of the linguistics and literature of the African languages of Southern Africa and/or more widely of Africa. This study area entails the systematic comparative investigation of two or more African languages as regard contemporary phenomena and issues of a theoretical and applied nature. It explores the African languages in terms of their empirical and theoretical significance to (i) the established international field of comparative research in the linguistics and literature of the African languages and (ii) issues of an applied nature within Southern Africa and/or more widely in Africa that require knowledge and competencies relating to comparative African linguistics, applied linguistics and literature.

1199 Languages, Linguistics and Literatures, Other

Any area of study in languages, linguistics and literatures not listed above.

CESM 12: LAW

A field of study concerned with identifying and elaborating the principles and procedures laid down by legislation, the common law and judicial precedent and enforced by institutions of government with a view to the preservation of the social order.

1201 International Aspects of Law

120101 International Aspects of Law
The study of the law concerned with the rules, institutions, and procedures governing transactions, relationships, and events that affect two or more nation-states or cut across national boundaries; including the methodology of such study.

120102 Comparative Law
The comparative study of the sources, concepts, and methods of different historical or contemporary legal systems.

120103 Foreign Legal Systems
The study of legal systems other than that of South Africa.

120104 Private International Law
The study of the rules of law indicating the applicable legal system whenever a private law issue involves two or more competing legal systems, and the recognition and enforcement of foreign court orders in domestic courts.

120105 Public International Law
The study of the law concerned with the rules, institutions and procedures governing international relations and the conduct of nation-states and other entities, including the process of law-creation through custom and treaty; jurisdiction of states over territory, resources, and neutrality; international protection of human rights; procedures for settling international disputes; the law relating to multinational (international) organisations.

120106 International Trade Law
The study of the law relating to international trade, with specific reference to international sale of goods, marine insurance, methods of payment in international trade, settlement of international commercial disputes.

120107 International Human Rights Law
The study of the development of the international protection of human rights with specific reference to various international conventions, declarations and charters of human rights, as well as the enforcement of international human rights.

120108 International Humanitarian Law
The study of the development of IHL with specific reference to types of conflict, conduct of hostilities and the weapons of war, combatant status, categories of protected persons, breaches of IHL and appropriate sanctions.

120109 International Criminal Law (ICL)
The study of the development of ICL, with specific reference to aggression, war crimes and genocide, international terrorism, torture, the International Criminal Court and other *ad hoc* international criminal tribunals, and the prosecution of international crimes.

120199 International Aspects of Law, Other
Any area of study in international aspects of law not listed above.

1202 Perspectives on Law

120201 Perspectives on Law
The study of law or of a particular system in a broader context, including historical, philosophical (or comparative) analysis.

120202 Legal History
The study of the development of the law and legal institutions of South Africa, giving attention to the political, social, economic, and intellectual factors determining such development, including the study of the history of the legal systems which have in the course of history contributed to the above development.

120203 Introduction to the Theory of Law
An elementary study of the basic concepts and principles, origin, history, sources, functions and divisions of the law; and of certain approaches to the science of law and legal philosophy.

120204 Jurisprudence
The study of philosophical issues relating to the nature, sources and purposes of the law, including a historical and critical study of general theories of law and legal science; the analysis of fundamental concepts and principles of law and legal science.

120205 Roman Law
The study of the legal system developed by ancient Rome, including the history and sources.

120206 Indigenous African Law and Legal Pluralism
The study of the terms, concepts, principles, aspects and theories underpinning Indigenous Law, and particularly of the most important rules of Indigenous African private and/or public law.

120207 Religious Legal Systems
The study of the recognition of religion-based legal systems by the 1996 Constitution, the basic legal principles of material religious systems including Islamic, Hindu and Jewish law and the interaction between these systems and the relevant provisions in the Bill of Fundamental Rights and international law.

120299 Perspectives on Law, Other
Any area of study in perspectives on law not listed above.

1203 Mercantile Law

120301 Mercantile Law, General
The study of the law relating to business, including the law relating to companies, partnerships, financial institutions, payment instruments, intellectual property, competition, insolvency, insurance, labour relations, taxation, carriage, shipping and maritime matters and commercial financing.

120302 The Law of Associations
The study of the law relating to voluntary associations, including companies and partnerships.

120303 Corporate Law
The study of companies, close corporations and other corporate business entities, with reference to their organisation, financing, control, management and liquidation.

120304 Law of Partnerships
The study of the nature, purposes, formation, trading and dissolution of partnerships.

120305 Law of Financial Institutions
The study of the law relating to banks, building societies, insurers, cooperative societies and other financial institutions.

120306 Law of Payment Instruments
The study of the law governing the use, form, transfer and discharge of cheques and other negotiable instruments, and the rights and liabilities of holders and other parties, as well as the law relating to electronic payment systems.

120307 Intellectual Property Law
The study of the law relating to intellectual property, including goodwill, copyright, patents, industrial models and designs, and trade marks.

120308 Law of Competition
The study of law relating to the protection of goodwill, the prevention of unfair competition and harmful business practices, and the regulation of monopolistic conditions.

120309 Law of Insolvency
The study of the law relating to insolvency, including voluntary surrender and compulsory sequestration, the effects of sequestration, voidable dispositions, the functions of the trustee, composition and rehabilitation, as well as corporate liquidation law, business rescue and aspects of cross-border insolvency.

120310 Law of Insurance
The study of the law relating to the contract whereby risk is transferred to the insurer, including the nature and formation of such contract, duties of the insured and the insurer, the premium, the insurable interest, the doctrine of subrogation as well as the law relating to statutory schemes transferring risk such as compulsory motor accident compensation.

120311 Labour Law
The study of the law relating to labour relationships and employment contracts, including collective bargaining, the determination of minimum conditions of employment, the regulation of conditions of employment, apprenticeships, workmen's compensation and unemployment insurance.

120312 Tax Law
The study of the law relating to fiscal duties and levies imposed by the central, provincial and local governments, including income tax, estate duty, donations tax, sales tax, excise duty, import duty, stamp duty, transfer duty and property tax.

120313 Shipping Law
The study of the law and practices governing the carriage of goods and persons by sea, including marine insurance and general average, admiralty jurisdiction, wrecks and salvage, parts and harbours.

120314 Law of Carriage
The study of the law relating to the transport of goods and persons by land and air.

120315 Commercial Financing Law
The study of the law relating to the financing of business transactions, including exchange control, the limitation of financial charges and the control of credit transactions.

120316 Tourism Law
The study of legislation relating to the tourism industry, and the legislation and common law relating to domestic and international travel, travel agent tour operations, hospitality law.

120317 Law of Consumer Protection
The study of the legislation and common law aimed at protection of the consumer against unfair contracts and trading practices.

120318 Electronic Information and Communication Law
The study of the law relating to the regulation of the internet with specific reference to jurisdiction, domain names, aspects of intellectual property law, constitutional aspects relating to for example privacy and freedom of expression, criminal and delictual liability, e-commerce activities.

120399 Mercantile Law, Other
Any area of study in mercantile law not listed above.

1204 Private Law

120401 Private Law, General
The study of the law concerned with the interests (subjective rights) of legal subjects (natural and legal persons), and the relations between these subjects on an equal, co-ordinated footing, including the law relating to obligations, family, person, succession, things, unjustified enrichment, water and trusts.

120402 Law of Obligations
The study of the law relating to juristic bonds between two or more parties in terms of which the party or parties on the one side have a right to a performance and the party or parties on the other side have a duty to render that performance, including contracts, delict and unjust enrichment.

120403 Law of Contract
The study of the law relating to the formation and legal effect of agreements made with the intention of creating obligations, including the interpretation, enforcement, performance, termination and remedies for the breach of such agreements.

120404 Law Relating to Specific Contracts
The study of the rules relating to various specific contracts, e.g. lease, surety ship, sale of movables, sale of land, agency and session.

120405 Law of Delict
The study of the law relating to wrongful acts, other than breaches of contract, resulting in patrimonial damage or injury to personality.

120406 Law Concerning other Obligations
The study of the law relating to obligations other than those flowing from contract or delict, including the law of unjustified enrichment.

120407 Family Law
The study of the law relating to the formation, consequences and termination of marriage and the juristic relationships in the family, including the relationship between husband and wife, parent and child, guardian and ward, parties to a civil union and cohabitants.

120408 Law of Persons
The study of the law relating to the origin and end of legal subjects, their rights, duties and capacities and the factors affecting their legal status.

120409 Law of Succession
The study of the law relating to the devolution of a person's estate after his death, including the requirements for testamentary dispositions, the construction of wills, and the duties, powers and liabilities of executors and administrators.

120410 The Law of Trusts
The study of the law concerning property held in trust, including the establishment, termination, and characteristics of trusts, the duties, powers and liabilities of trustees, and the rights of beneficiaries.

120411 The Law of Property
The study of the common law and legislation relating to the acquisition, exercise, transfer and termination of real rights, including legislation relating to sectional titles and other focus of fractional property ownership, as well as constitutional property law and land reform.

120412 Water Law
The study of the law relating to the conservation and utilisation of water resources.

120413 The Law of Mines and Minerals
The study of the law relating to the acquisition and disposition of mineral rights and the regulation and control of the prospecting for and the mining and exploitation of mineral resources.

120414 The Law of Estoppel
The study of the law relating to situations where a person is precluded from denying the truth of his representation so as not to cause prejudice to another who has acted thereon.

120415 The Law of Damages
The study of the law relating to the assessment and quantification of damages payable to a person suffering loss in consequence of an infringement on his or her interests as a result of the conduct of another.

120499 Private Law, Other
Any area of study in private law not listed above.

1205 Public Law

120501 Public Law, General
The study of the law concerned with matters of public or general interest, including administrative law, constitutional law, criminal law, the interpretation of statutes, medical jurisprudence and communication law.

120502 Administrative Law
The study of the law governing the organisation, powers and the exercise of these powers by the executive authorities of the state, including the relationship

between these authorities *inter se* and the relationship between these authorities and private individuals.

120503 Constitutional Law
The study of the law concerned with the organisation of the legislative, judicial and executive authorities of the state and the demarcation and exercise of these powers.

120504 Human Rights Law
The study of the provisions of the Bill of Rights as contained in the enacted Constitution of South Africa.

120505 Local Government Law
The study of the development of the law relating to local authorities, with specific reference to implications of the Constitution, their powers and functions and the relationship between local authorities and national and provincial government institutions.

120506 Criminal Law
The study of the law concerned with acts of commission or omission against the state, a person, property or other interests, which have been proscribed by society and for which legal sanctions are imposed, including the determination of sanctions to be imposed on those deemed guilty of criminal offences.

120507 Interpretation of Statutes
The study of the legal rules and guidelines used for the construction and interpretation of legislation.

120508 Medical Law
The study of the principles of medical science that concern juridical relevant facts, i.e. forensic medicine, as well as the study of the legal principles relating to the practice of medicine and health services, i.e. medical law.

120509 Media Law
The study of the legal principles concerning mass communication media, and their effect upon the rights of the private individual and the interests of the state.

120510 Environmental Law
The study of the nature and contents of environmental law and environmental principles, including environmental framework law; the law relating to environmental impact assessments, biodiversity, air quality management, water and waste management, mining and energy; international environmental law and introductory principles of environmental management. Includes further the study of the development of the law relating to local authorities, with specific reference to implications of the Constitution, their powers and functions and the relationship between local authorities and national and provincial government institutions.

120511 Education Law
The study of the development of education law with specific reference to constitutional aspects and the rights of learners, parents and educators; management and governance of public schools and higher education institutions, and private aspects of education.

120599 Public Law, Other
Any area of study in public law not listed above.

1206 Formal Law

120601 Formal Law, General
The study of the jurisdiction, procedures, remedies and sanctions of civil and criminal courts and of other instances instituted for the settlement of disputes.

120602 Law of Alternative Dispute Resolution
The study of the legal rules and processes whereby legal disputes are settled by persons or instances other than the civil courts, and appointed for that purpose by law or in terms of an agreement between the parties concerned, such as arbitration, mediation and conciliation.

120603 Law of Civil Procedure
The study of jurisdiction, procedures and remedies relating to the institution of civil actions in court.

120604 Law of Criminal Procedure
The study of the legal rules governing the operation of the criminal justice system and the application of substantive criminal law to the individual, such as a consideration of the prerogatives of and limitations upon the State in the restraint of an individual's liberty, the requisition and use of facts, the filing of criminal pleadings, the conduct of the trial proceedings and the formal aspects of sentencing.

120605 Law of Evidence
The study of the manner in which facts are proved in civil or criminal proceedings in courts or administrative agencies, including the introduction and exclusion of evidence through witnesses and documents.

120699 Formal Law, Other
Any area of study in formal law not listed above.

1207 Legal Profession

120701 Legal Profession, General
The study of the organised branches of the legal profession, the techniques employed in their services, specialised fields of their practice, their professional responsibilities and the delivery of legal services to the public.

120702 Conveyancing
The study of the legal rules and techniques relating to the registration of real rights in immovable property.

120703 Notarial Practice
The study of the legal rules and techniques relating to the professional practice of a notary public.

120704 Legal Aid
The study of the rules and procedures relating to the provision of free legal services to indigent members of the public.

120705 Legal Ethics
The study of the ethical obligations and standards of conduct applicable to members of the legal profession in their relations with clients, the courts, other lawyers and the public.

120706 Legal Techniques and Research

The study of the specialised techniques used by lawyers in their professional practice such as the drafting of contracts, pleadings and other documents; court technique including cross-examination; negotiation and mediation; and office management. It includes also the study of academic legal methodology pertaining to the sources of law, legal research and reasoning and the principles of legal writing.

120707 Legal Costs

The study of the rules relating to the apportioning of legal costs between the litigating parties.

120708 Estate Planning

The study and practical applications of the laws applicable to estate planning, including the practical application of the Law of Succession , Tax Law, Matrimonial Property Law, Trust Law and Entrepreneurial Law.

120709 Administration of Estates

The study of the principles and procedures relating to the administration of solvent and/or insolvent deceased estates.

120799 Legal Profession, Other

Any area of study in legal profession not listed above.

1299 Law, Other

Any area of study in law not listed above.

CESM 13: LIFE SCIENCES

A broad area of study which focuses on the biological sciences and the non-clinical biomedical sciences.

1301 Biology, General

130101 Biology/Biological Sciences, General
A general study of biology at the introductory, basic level or a programme in biology or the biological sciences that is undifferentiated as to title or content. Includes instruction in general biology and programmes covering a variety of biological specialisations.

1302 Biochemistry, Biophysics and Molecular Biochemistry

130201 Biochemistry
An area of study which focuses on the scientific study of the chemistry of living systems, their fundamental chemical substances and reactions, and their chemical pathways and information transfer systems, with particular reference to carbohydrates, proteins, lipids and nucleic acids. Includes instruction in biology-organic chemistry, protein chemistry, bioanalytical chemistry, bioseparations, regulatory biochemistry, enzymology, hormonal chemistry, calorimetry, and research methods and equipment operation.

130202 Biophysics
An area of study which focuses on the application of physics principles to the scientific study the mechanisms of biological processes and assemblies at all levels of complexity. Includes instruction in research methods and equipment operation and applications to subjects such as bioenergetics, biophysical theory and modelling, electrophysics, membrane biology, channels, receptors and transporters, contractility and muscle function, protein shaping and folding, molecular and supramolecular structures and assemblies, and computational science.

130203 Molecular Biology
An area of study which focuses on the scientific study of the structure and function of biological macromolecules and the role of molecular constituents and mechanisms in supramolecular assemblies and cells. Includes instruction in such topics as molecular signalling and transduction, regulation of cell growth, enzyme substrates and mechanisms of enzyme action, DNA-protein interaction, and applications to fields such as biotechnology, genetics, cell biology and physiology.

130204 Molecular Biochemistry
An area of study which focuses on the scientific relationship of physiological function to the structure and actions of macromolecules and supramolecular assemblies such as multienzyme complexes, membranes and viruses. Includes instruction in the chemical mechanisms of regulation and catalysis, protein synthesis and other syntheses, and biomolecular chemical reactions.

130205 Molecular Biophysics
A scientific area of study that focuses on the dynamics and interactions of macromolecules and other three-dimensional ultrastructures, the architecture of supramolecular structures, and energy transfer in biomolecular systems. Includes instruction in energy transduction, structural dynamics, mechanisms of electron

and proton transfer in biological systems, bioinformatics, automated analysis, and specialised research techniques.

130206 Structural Biology
An area of study which focuses on the scientific study of submolecular and molecular components and assemblies of living systems and how they are organised into functional units such as cells and anatomic tissues. Includes instruction in glycoprotein, carbohydrate, protein and nucleic acid structures and chemistry; cytoskeletal structure; nuclear and intracellular structures; molecular recognition; molecular chaperones; transcription and folding; multicellular organisation; microtubules and microfilaments; cell differentiation; immunophysics; and DNA sequencing.

130207 Photobiology
An area of study which focuses on the scientific study of the effects of light energy on living organisms, the manufacture and processing of luminescence by organisms, and the uses of light in biological research. Includes instruction in bioluminescence, chronobiology, photomedicine, environmental photobiology, organic photochemistry, photomorphogenesis, photoreceptors and photosensitisation, molecular mechanics of photosynthesis, phototechnology, vision, ultraviolet radiation, radiation physics, and spectral research methods.

130208 Radiation Biology/Radiobiology
An area of study which focuses on the effects of radiation on organisms and biological systems. Includes instruction in particle physics, ionisation, and biophysics of radiation perturbations, cellular and organismic repair systems, genetic and pathological effects of radiation, and the measurement of radiation dosages.

130299 Biochemistry, Biophysics and Molecular Biochemistry, Other
Any area of study which in biochemistry, biophysics and molecular biochemistry not listed above.

1303 Botany/Plant Biology

130301 Botany/Plant Biology, General
An area of study which focuses on the scientific study of plants, related microbial and algal organisms, and plant habitats and ecosystem relations. Includes instruction in plant anatomy and structure, phytochemistry, cytology, plant genetics, plant morphology and physiology, plant ecology, plant taxonomy and systematics, paleobotany, and applications of biophysics and molecular biology.

130302 Plant Pathology/Phytopathology
An area of study which focuses on the scientific study of plant diseases and plant health, and the development of disease control mechanisms. Includes instruction in plant anatomy and physiology; pathogenesis; molecular plant virology; molecular genetics; bacterial epidemiology; causal agent identification; host/agent interactions; disease resistance and response mechanisms; developing plant disease treatments; disease prevention; and disease physiology and control.

130303 Plant Physiology
An area of study which focuses on the scientific study of plant internal dynamics and systems, plant-environmental interaction, and plant life cycles and processes. Includes instruction in cell and molecular biology, plant nutrition, plant respiration, plant growth, behaviour and reproduction, photosynthesis, plant systematics, and ecology.

130304 Plant Molecular Biology

An area of study which focuses on the application of molecular biology, biochemistry, and biophysics to the study of biomolecular structures, functions and processes specific to plants and plant substances. Includes instruction in the biochemistry of plant cells, nuclear-cytoplasmic interactions, molecular cytostructures, photosynthesis, plant molecular genetics, and the molecular biology of plant diseases.

130399 Biology/Plant Biology, Other

Any area of study in biology/plant biology not listed above.

1304 Cell/Cellular Biology and Anatomical Sciences

130401 Cell/Cellular Biology and Histology

An area of study which focuses on the scientific study of the structure, function and regulation of cells as individual units and as components of larger systems. Includes instruction in cell chemistry, cellular dynamics, cellular replication and reproduction, cell anatomy, membrane function, organelles, cell adhesion and extracellular matrices, cell dynamics and motility, meiosis and mitosis, signal transduction, regulation, recognition and defence mechanisms, the cell cycle, cell metabolism and respiration, gene expression, and studies of cell types and characteristics.

130402 Anatomy

An area of study which focuses on the scientific study of organ systems, tissue structures, and whole bodies together with their cellular and structural components and dynamics. Includes instruction in cell biology and histology, structural biology, molecular mechanics, regional and gross anatomy, embryology, neuroanatomy, endocrinology and secretory dynamics, and applications to such topics as aging and disease conditions.

130403 Developmental Biology and Embryology

An area of study which focuses on the scientific study of embryology, development and growth of animals and human beings. Includes instruction in fertilisation, oogenesis, histogenesis, gastrulation, and cell differentiation, embryological development including organ and pattern formation, morphogensis, gene regulation, cell lineage and fate maps, disease and defect studies, transgenic and evolutionary models of growth and development, and applications to specific organisms and phyla.

130404 Neuroanatomy

An area of study which focuses on the scientific study of structure and function of the brain and central nervous system. Includes instruction in the molecular biology of neural cells and circuits, cognitive biology, neural transmitters and receptors, neuronal signalling and control of physical function, membrane and synapse structure and communication, autonomic function, nervous system circuitry and mapping, anatomy of neurological disease and disorders, brain studies, protein chemistry and computational biology.

130405 Cell/Cellular Biology and Anatomy

An integrated, combined area of study that focuses on the scientific study of cell structure, function, and dynamics within the context of organismic, regional, and gross anatomical systems. Includes instruction in molecular biology, cell biology and histology, structural biology, anatomy, embryology, endocrinology, and applications to specific systems, diseases, defects and processes.

130499 Cell/Cellular Biology and Anatomical Sciences, Other
Any area of study in cell/cellular biology and anatomical sciences not listed above.

1305 Microbiological Sciences and Immunology

130501 Microbiology, General
An area of study which focuses on the scientific study of unicellular organisms and colonies, and subcellular genetic matter and their ecological interactions with human beings and other life. Includes instruction in microbial genetics, cell biology, cell physiology, virology, pathogenic microbiology, environmental microbiology, immunology, biostatistics, bioinformatics, and laboratory methods including microscopy.

130502 Medical Microbiology and Bacteriology
An area of study which focuses on the scientific study of pathogenic bacteria that are significant factors in causing or facilitating human disease. Includes instruction in the pathogenesis of bacterial diseases, bacterial genetics and physiology, bacterial anatomy and structure, antigens, bacterial reproduction, bacterial adhesion, phagocytes, and the identification of new or mutated bacteria and bacterial agents.

130503 Virology
An area of study that focuses on the scientific study of subcellular pieces of genetic material, called viruses, that inhabit living cells in parasitical relationships and their role in disease. Includes instruction in virus taxonomy and systematics, viral structures, viral genetics, prions, virus/host cell interaction, viral pathogenesis, and applications to specific topics such as cancer biology.

130504 Parasitology
An area of study which focuses on the scientific study of biological organisms living in ecological exploitative and competitive relationships with host organisms, and the role of parasites in causing injury, disease, and environmental damage. Includes instruction in vector biology, immunoparasitology, medical parasitology, molecular biology of parasitical associations, veterinary and comparative parasitology, chemotherapeutics, and ecological and systematic parasitology.

130505 Mycology
An area of study which focuses on the scientific study of fungi, lichenous plants, eukaryotic micro organisms, myxomycetes, and plamodiophorales and their relationship to diseases in higher plants, animals and human beings as well as to pharmacologically useful products. Includes instruction in cell and molecular biology; histopathology; fungal growth and behaviour; environmental mycology; antifungal sensitivity; mycoses; pathogens and pathogenesis; pharmacological properties; and computer and laboratory research methods.

130506 Immunology
An area of study which focuses on scientific study of the biological mechanisms involved in the pathogenesis of disease, host-pathogen interactions, and host response to disease. Includes instruction in antigen and antibody structure and function, effector mechanisms, receptors, histocompatability, host-pathogen recognition, disease modelling, autoimmune systems, antibody formation, cytotoxic responses, regulation of immune response, virulence determinants, intercellular signalling, immunosuppression, immunotherapy, immunogenetics, disease markers, transplanation, antibody humanisation and microbial pathogenesis.

130599 Microbiological Sciences and Immunology, Other
Any area of study in the microbiological sciences and immunology not listed above.

1306 Zoology/Animal Biology

130601 Zoology/Animal Biology, General
A general area of study that focuses on the scientific study of the biology of animal species and phyla, with reference to their molecular and cellular systems, anatomy, physiology, and behaviour. Includes instruction in molecular and cell biology, microbiology, anatomy and physiology, ecology and behaviour, evolutional biology, and applications to specific species and phyla.

130602 Entomology
An area of study which focuses on the scientific study of insect species and populations in respect of their life cycles, morphology, genetics, physiology, ecology, taxonomy, population dynamics, and environmental and economic impacts. Includes instruction in applicable biological and physical sciences as well as insect toxicology and the biochemical control of insect populations.

130603 Animal Physiology
An area of study which focuses on the scientific study of function, morphology, regulation, and intercellular communications and dynamics within vertebrate and invertebrate in animal species, with comparative applications to homo sapiens and its relatives and antecedents. Includes instruction in reproduction, growth, lactation, digestion, performance, behavioural adaptation, sensory perception, motor action, phylogenetics, biotic and abiotic function, membrane biology, and related aspects of biochemistry and biophysics.

130604 Animal Behaviour and Ethology
An area of study which focuses on the scientific study of the psychological and neurological bases of animal sensation, perception, cognition, behaviour and behavioural interactions within and outside the species. Includes instruction in ethology, behavioural neuroscience, neurobiology, behavioural evolution, cognition and sensory perception, motivators, learning and instinct, hormonal controls, reproductive and developmental biology, community ecology, functional behaviour, and applications to specific behaviours and patterns as well as to specific phyla and species.

130605 Wildlife Biology
An area of study which focuses on the application of biological principles to the study of vertebrate wildlife, wildlife habitats, and related ecosystems in remote and urban areas. Includes instruction in animal ecology, adaptational biology, urban ecosystems, natural and artificial habitat management, limnology, wildlife pathology, and vertebrate zoological specialisations such mammalogy, herpetology, ichthyology, ornithology, and others.

130699 Zoology/Animal Biology, Other
Any area of study in zoology/animal biology not listed above.

1307 Genetics

130701 Genetics, General
A general area of study that focuses on the scientific study of the organisation, recombination, function, regulation, and transmission of heritable information in biological organisms at all levels of complexity. Includes instruction in Mendelian genetics, mechanisms of gene regulation, chromosome structure and replication,

epigenetic phenomena, DNA repair and recombination, sex determination, genetic interactions between genomes, and molecular evolution.

130702 Molecular Genetics
An area of study which focuses on the scientific study of the molecular mechanisms regulating gene expression, information transfer, replication, and stability in DNA and RNA. Includes instruction in prokaryotic genetics and gene expression, development and evolution of gene sequences and anatomical forms, biochemistry of gene replication and recombination, transcription and processing, genomics, chromatin architecture, and DNA/RNA structure.

130703 Microbial and Eukaryotic Genetics
An area of study which focuses on the scientific study of the genetics of viruses, infectious agents, organelles, nuclear genomes, eubacteria, archaebacteria, and eukaryotic organisms. Includes instruction in molecular genetics and evolution, parasitic and symbiotic interaction at the genetic level, epigenetic phenomena, microbial interactions, and genomics.

130704 Animal Genetics
An area of study which focuses on the scientific study of the genetics of multicellular animal life forms from the experimental, comparative and clinical (veterinary and medical) viewpoints. Includes instruction in molecular genetics, gene expression, gene regulation, genomics, epigenetic phenomena, DNA recombination and repair, genetic interactions at the microbial and higher levels, and molecular evolution.

130705 Plant Genetics
An area of study which focuses on the scientific study of the genetics of plants, algae and fungi as related to botanical research as well as to applications in comparative genetics, ecology and evolutionary studies, clinical studies, and industrial research. Includes instruction in molecular genetics, gene expression, gene regulation, genomics, epigenetic phenomena, DNA recombination and repair, genetic interactions at the microbial and higher levels, and molecular evolution.

130706 Human/Medical Genetics
An area of study which focuses on the scientific study of human genetics from the standpoint of medical applications such as clinical diagnosis, genetic engineering and therapy, transplantation, and the study of genetic diseases and disabilities and their defence. Includes instruction in human molecular genetics, genetic factors causing disease, changes in gene expression during development, differentiation and pathogenesis, recombinant DNA, gene therapy, clinical genetics, genetic epidemiology, immunogenetics, cytogenetics, and genetics of specific disorders and diseases.

130799 Genetics, Other
Any area of study in genetics not listed above.

1308 Physiology, Pathology and Related Sciences

130801 Physiology, General
A general area of study that focuses on the scientific study of the functional dynamics, morphology, and biochemical and biophysical communications within organisms and between living systems at all levels of complexity and integration. Includes instruction in reproduction, growth, hormonal action, vascular function, respiration, digestion, sensory perception and processing, sensorimotor integration, signal encoding and conveyance, homeostasis, physical function and malfunction, evolutionary physiology, and disease processes.

130802 Molecular Physiology

An area of study which focuses on the scientific study of dynamic interactive processes and biochemical communications at the subcellular level. Includes instruction in ion channels and transporters, molecular signalling pathways, endocrine control and regulation, genetic information transfer, homeostasis and molecular control systems, electrophysiology and sensory mechanisms, protein synthesis and applicable research methods and technologies.

130803 Cell Physiology

An area of study which focuses on the scientific study of physiological processes operating within and among cells, and intracellular communication and behaviour, in the context of larger systems and whole organisms. Includes instruction in cell and molecular biology, molecular physiology, cell cycle control, signal transduction, protein structure, membrane biochemistry and structure, ion channel physics, cell respiration and digestion, secretory functions, cell adhesion and communication, information encoding and decoding, and the relation of cell physiology to tissue, organ and organismic functioning.

130804 Endocrinology

An area of study which focuses on the scientific study of the composition, manufacture, and secretion of protein compounds by cells and glands and the role of endocrine substances in bodily processes. Includes instruction in protein chemistry, protein secretion, membrane biogenesis and transfer methods, cellular communication, gene and cell regulation, cytochemistry, fractionation, radio autography, and applications such as neuroendocrinology.

130805 Reproductive Biology

An area of study which focuses on the scientific study of reproductive processes and biogenesis in animals and human beings. Includes instruction in reproductive ecology and behaviour, reproductive system physiology, endocrinology, developmental biology, neuroendocrinology, evolution and types of reproductive systems, reproductive genetics, physiopathology of reproductive processes, and applications of molecular biology and biophysics to the study of reproductive physiology.

130806 Neurobiology and Neurophysiology

An area of study which focuses on the scientific study of the cellular and molecular basis of the lower and higher neural functions in animals and human beings, organ system behaviour and the immune response, and the control of physiological systems. Includes instruction in computational biology, computer modelling, protein biochemistry, electrophysiology, morphological basis of behaviour, neural signal transduction and reception, synaptic activity, neurotransmission, sensory perception and sensorimotor interaction, inflammation and neurodegeneration, neurological and autoimmune disease, immune response, maintenance of homeostasis, and autonomic function.

130807 Cardiovascular Science

An area of study which focuses on the scientific study of the structure and functioning of the heart, vascular system, and blood in animals and human beings and the disorders and diseases associated with the cardiovascular system. Includes instruction in cardiovascular physiology, blood physiology, vasculature, vascular metabolism, neural control of cardiovascular function, microvascular permeability and membrane transport, cardiac contraction mechanisms, homeostasis, and applications to topics such as arteriosclerosis, heart disease,

diabetes, vascular remodelling, transplantation, transfusion and pacemakers and artificial organs.

130808 Exercise Physiology

An area of study which focuses on the scientific study of the physiological processes involved in physical or motor activity, including sensorimotor interactions, response mechanisms, and the effects of injury, disease and disability. Includes instruction in muscular and skeletal anatomy, molecular and cellular basis of muscle contraction, fuel utilisation, neurophysiology of motor mechanics, systemic physiological responses (respiration, blood flow, endocrine secretions and others), fatigue and exhaustion, muscle and body training, physiology of specific exercises and activities, physiology of injury, and the effects of disabilities and disease.

130809 Vision Science/Physiological Optics

An area of study which focuses on the scientific study of vision, visual processes, and related phenomena and clinical research and treatment modalities. Includes instruction in ocular anatomy and physiology, microbiology of the eye, electrophysiology, neurophysiology, corneal physiology, photochemistry, psychophysics, visual biophysics and motor systems, sensory mechanisms and photoreception, eye circulation and metabolism, geometric and physical optics, ocular development across the life span, visual stimuli and perception, colour vision, eye motility, biometrics and measurement techniques, visual pathology, and environmental issues.

130810 Pathology/Experimental Pathology

An area of study which focuses on the scientific study of the expression, initiation, maintenance and progression of tissue injury and disease, including death, and the relationship of pathogenesis to fundamental molecular and cellular mechanisms. Includes instruction in immunology, microbiology, gene expression, inflammation, cell injury, apoptosis, immunopathology, molecular markers of disease and toxins, neoplasia, growth regulation, and organ- and system-specific investigations.

130811 Oncology and Cancer Biology

An area of study which focuses on the scientific study of carcinogens; the onset of malignancy in cells, tissues, blood and organs; the genetics of cancer; the anatomy and physiology of cancer cells; and the study of cancer behaviours and treatments. Includes instruction in gene expression, oncogenes and tumour suppressor genes, viral genes and cancer proliferation, regulation of signal transduction, cancer proteins, hormonal and growth factors in cancer cells, tumour promotion, progression and metastasis, carcinogen receptors and metabolism, carcinogen ecology, immunological targeting, and studies of genetic, chemical radiologic and other treatment therapies.

130812 Sport and Exercise Sciences/Kinesiology

An area of study which focuses on the application of scientific principles related to physical activity, fitness, exercise and sport performance. Includes instruction in biomechanics, functional anatomy, motor ability, kinanthropometry, testing and measurement of human ability of performance and functional exercise training.

130899 Physiology, Pathology and Related Sciences, Other

Any area of study in physiology, pathology and related sciences not listed above.

1309 Pharmacology and Toxicology

130901 Pharmacology

An area of study which focuses on the scientific study of drug interactions on biological systems and organisms and the sources, chemical properties, biological effects, and therapeutic uses of drugs. Includes instruction in pharmacodynamics, pharmacokinetics, toxicology, drug therapeutics, drug action, bodily responses to drug events, biochemical proliferation and differentiation, apoptosis, cell biology, medicinal chemistry, and studies of specific drugs and drug interactions.

130902 Molecular Pharmacology

An area of study which focuses on the scientific study of the biochemical and biophysical characteristics of drugs at the molecular level and their interaction with, and effects on, biological macromolecules and cellular structures and processes. Includes instruction in molecular biology and biophysics; pharmacology of signal transduction, transmitters and protein synthesis and release; receptors, protein interaction and binding; drug discovery and recognition; molecular toxicology; drug design; pharmacodynamics; developmental genetics; and studies of therapeutic strategies.

130903 Neuropharmacology

An area of study which focuses on the scientific study of drugs that modify the function of the brain and central nervous system, the effects of such drugs on health, disease, perception, motor action, and behaviour; and the development of countermeasures and treatment therapies. Includes instruction in neuroanatomy, neurophysiology, behavioural neuroscience, neurobiochemistry, neuropathology, the mechanisms of brain function, medicinal chemistry, pharmaceutics and studies of specific drugs and drug therapies.

130904 Toxicology

An area of study which focuses on the scientific study of poisons and other biohazards; their interactions with organisms and their food and respiratory systems; and their prevention, management and counteraction. Includes instruction in toxicological biochemistry, toxic agents and transporters, toxin fate, toxicokinetics and metabolism, toxin classification, molecular toxic mechanisms, extra cellular matrices and cell function, bacterial pathogenesis and mutagenesis, pathophysiology and apoptosis, cell stress and injury, studies of specific toxins and studies of specific organ systems and physiological functions in relation to toxicological problems.

130905 Molecular Toxicology

An area of study which focuses on the scientific study of the genetic determinants of susceptibility to external pollutants and poisons; the interaction of toxic agents with biological systems at the molecular and cellular levels; and the development of countermeasures and treatments. Includes instruction in pharmacogenetics, biomolecular structure, gene expression and regulation, transgenic modelling, toxic events signalling, transcriptional activation, mutagenesis and carcinogenesis, pulmonary toxicology, xenobiotic metabolism, oxidative stress, risk assessment, molecular dosimetry, and studies of specific toxins and treatment therapies.

130906 Environmental Toxicology

An area of study which focuses on the scientific study of the health effects associated with exposure to toxic chemicals and systems occurring in the natural, work and living environments; the management of environmental toxins and toxicity; and the development of protections for humans, animals and plants. Includes instruction in applied ecology; microbiology; toxin transport, fate and degradation; dermal toxicology; reproductive and genetic toxicology; atmospheric

and environmental chemistry; metals toxicology; environmental mutagens and biotransformation; nutrient interaction; chemical sensitivity, disorders and disease; risk assessment; animal waste management; environmental health; and hazardous materials management.

130907 Pharmacology and Toxicology
An area of study with an integrated, combined approach to the study of pharmacological and toxicological issues in biology and the biomedical sciences. Includes instruction in topics such as solvents, xenobiotic metabolism, chemical toxicity, neurotoxicology, immunopharmacology, biotransformation, tissue culture and in vitro studies, biomolecular analysis, bio activation and inactivation, enzyme regulation, chemoprevention and chemotherapy, industrial and chemical studies, radiation health, and bioinformatics.

130999 Pharmacology and Toxicology, Other
Any area of study in pharmacology and toxicology not listed above.

1310 Biomathematics and Bioinformatics

131001 Biometry/Biometrics
An area of study which focuses on the application of statistics and other computational methods to the study of problems in the biological sciences and related fields in agriculture and natural resources. Includes instruction in computational biology, mathematical statistics, matrix algebra, applied calculus, experimental design, linear modelling, sampling theory, stochastic processes, spatial and temporal analysis, longitudinal analysis, sparse/unbalanced data and complex error, and applications to such topics as population genetics, animal breeding, forest genetics, population dynamics, wildlife biometry, ecology, and agricultural and natural resource management.

131002 Biostatistics
An area of study which focuses on the application of descriptive and inferential statistics to biomedical research and clinical, public health, and industrial issues related to human populations. Includes instruction in mathematical statistics, modelling, clinical trials methodology, disease and survival analysis, longitudinal analysis, spatial analysis, computer tomography, biostatistics consulting, and applications to such topics as genetics, oncology, pharmacokinetics, physiology, neurobiology, and biophysics.

131003 Bioinformatics
An area of study which focuses on the application of computer-based technologies and services to biological, biomedical, and biotechnology research. Includes instruction in algorithms, network architecture, principles of software design, human interface design, usability studies, search strategies, database management and data mining, digital image processing, computer graphics and animation, computer-aided design (CAD), computer programming, and applications to experimental design and analysis and to specific quantitative, modelling, and analytical studies in the various biological specialisations.

131004 Mathematical Biology
An area of study which focuses on modelling natural, biological processes using mathematical techniques and tools. Includes population dynamics, mathematical epidemiology, modelling cell and molecular biology and the modelling of physiological systems.

131099 Biomathematics and Bioinformatics, Other
Any area of study in biomathematics and bioinformatics not listed above.

1311 Biotechnology

131101 Biotechnology

An area of study which focuses on the application of the biological sciences, biochemistry, and genetics to the preparation of new and enhanced agricultural, environmental, clinical, and industrial products, including the commercial exploitation of microbes, plants and animals. Includes instruction in bioinformatics, gene identification, phylogenetics and comparative genomics, bioinorganic chemistry, immunoassaying, DNA sequencing, xenotransplantation, genetic engineering, industrial microbiology, drug and biologic development, enzyme-based production processes, patent law, biotechnology management and marketing, applicable regulations, and biotechnology ethics.

1312 Ecology, Evolution, Systematics and Population Biology

131201 Ecology

An area of study which focuses on the scientific study of the relationships and interactions of biological systems, such as organisms, to each other, to complex and whole systems, and to the physical and other non-biological aspects of their environments. Includes instruction in biogeochemistry; landscape and/or marine/aquatic dynamics; decomposition; global and regional elemental budgets; biotic and abiotic regulation of nutrient cycles; ecophysiology; phytosociology, ecosystem resilience, disturbance and succession; community and habitat dynamics; organismal interactions (co-evolution, competition, predation, paleoecology, and evolutionary ecology.

131202 Marine Biology and Biological Oceanography

An area of study which focuses on the scientific study of the ecology and behaviour of microbes, algae, plants, and animals inhabiting oceans, coastal waters and saltwater wetlands, and their interactions with the physical environment. Includes instruction in chemical, physical and geological oceanography; molecular, cellular and biochemical studies; marine microbiology; marine botany; phycology, ichthyology; mammalogy, marine population dynamics and biodiversity; reproductive biology; studies of specific species, phyla, habitats and ecosystems; marine paleocology and palaeontology; and applications to fields such as fisheries science and biotechnology.

131203 Evolutionary Biology

An area of study which focuses on the scientific study of the genetic, developmental, functional and morphological patterns and processes, and theoretical principles; and the emergence and mutation of morphological systematics; genetics and development; evolutionary transformation; paleobiology and palaeontology; morphogenesis; mutation; locomotor, biomechanical and craniodental form and function; evolutionary theory; and systematic biology.

131204 Aquatic Biology/Limnology

An area of study which focuses on the scientific study of the ecology and behaviour of microbes, algae, plants, and animals inhabiting inland fresh waters such as lakes, ponds, rivers, creeks, estuaries, and wetlands. Includes instruction in geology and hydrology; aquatic ecosystems; microbiology; mycology; botany; ichthyology; mammalogy; population biology and biodiversity; studies of specific species, phyla and habitats; and applications to fields such as natural resources conservation, fisheries science, and biotechnology.

131205 Environmental Biology

An area of study which focuses on the scientific study of the origins, functions, relationships, interactions, and natural history of living populations, communities, species and ecosystems in relation to dynamic environmental processes.

Includes instruction in biodiversity, molecular genetic and genomic evolution, mesoscale ecology, computational biology and modelling, conservation biology, local and global environmental change, and restoration ecology.

131206 Population Biology

An area of study which focuses on the scientific study of the natural history, life cycle behaviour, and ecosystem dynamics of single species and multi-species communities, and the patterns and causes of diversity within and among such populations. Includes instruction in biostatistics, population dynamics, population and quantitative genetics, RNA and DNA sequences, genomics, evolutionary ecology, natural adaptation and hybridization, geographic differentiation, life history and life cycle studies, and animal and plant demography.

131207 Conservation Biology

An area of study which focuses on the application of the biological sciences to the specific problems of biodiversity, species preservation, ecological sustainability, and habitat fragmentation in the face of advancing human social, economic and industrial pressures. Includes instruction in ecology, environmental science, biological systems, extinction theory, human-animal and human-plant interaction, ecosystem science and management, wetland conservation, field biology, forest and wildlife biology, and natural history.

131208 Systematic Biology/Biological Systematics

An area of study which focuses on the theoretical and empirical study of the principles and processes underlying the origin and maintenance of biological taxonomic diversity; related biogeographical and evolutionary patterns; and studies of the origin, diversification, distribution, and extinction of species and lineages. Includes instruction in phylogenetic analysis, structural development and molecular evolution, classification and taxonomic theory, biological nomenclature, taxonomic assignment, evolutionary theory, biological surveys and inventories, computer modelling and database building.

131209 Epidemiology

An area of study which focuses on the scientific study of disease, disability, and trauma patterns within and across populations and the development of health management mechanisms to prevent and control disease outbreaks and injurious behaviours. Includes instruction in biostatistics, biochemistry, molecular biology, immunology, disease and injury determinants, genetic disease and disability factors, behavioural studies, health services research, environmental disease and injury factors, and population studies.

131299 Ecology, Evolution, Systematics and Population Biology, Other

Any area of study in ecology, evolution, systematics and population biology not listed above.

1399 Life Sciences, Other

Any area of study in life sciences not listed above.

CESM 14: PHYSICAL SCIENCES

A broad area of study which focuses on the scientific inanimate objects, processes of matter and energy and associated phenomena.

1401 Physical Sciences, General

140101 Physical Sciences, General
An area of study which focuses on the major topics, concepts, processes, and interrelationships of physical phenomenal as studied in any combination of physical science disciplines.

1402 Astronomy and Astrophysics

140201 Astronomy
A general area of study that focuses on the planetary, galactic, and stellar phenomena occurring in outer space. Includes instruction in celestial mechanics, cosmology, stellar physics, galactical evolution, quasars, stellar distribution and motion, interstellar medium, atomic and molecular constituents of astronomical phenomena, planetary science, solar system evolution, and specific methodologies such as optical astronomy, radioastronomy, and theoretical astronomy.

140202 Astrophysics
An area of study which focuses on the theoretical and observational study of the structure, properties, and behaviour of stars, star systems and clusters, stellar life cycles, and related phenomena. Includes instruction in cosmology, plasma kinetics, stellar physics, convolution and non-equilibrium radiation transfer theory, non-Euclidean geometries, mathematical modelling, galactic structure theory, and relativistic astronomy.

140203 Planetary Astronomy and Science
An area of study which focuses on the scientific study of planets, small objects, and related gravitational systems. Includes instruction in the structure and composition of planetary surfaces and interiors, planetary atmospheres, satellites, orbital mechanics, asteroids and comets, solar system evolution and dynamics, planetary evolution, gravitational physics, and radiation physics.

140204 Space physics
A general area of study that focuses on the study of physical processes in Earth's ionosphere and magnetosphere, the sun's corona, the heliosphere and the heliopause where local interstellar matter is encountered. Includes instruction in plasma physics, transport theory, mathematical and computational modelling, observations and data analysis, the structure of the heliosphere and adjacent regions, space weather and space climate.

140299 Astronomy and Astrophysics, Other
Any area of study in astronomy and astrophysics not listed above.

1403 Atmospheric Sciences and Meteorology

140301 Atmospheric Sciences and Meteorology, General
A general area of study that focuses on the scientific study of the composition and behaviour of the atmospheric envelopes surrounding the earth, the effect of earth's atmosphere on terrestrial weather, and related problems of environment

and climate. Includes instruction in atmospheric chemistry and physics, atmospheric dynamics, climatology and climate change, weather simulation, weather forecasting, climate modelling and mathematical theory; and studies of specific phenomena such as clouds, weather systems, storms, and precipitation patterns.

140302 Atmospheric Chemistry and Climatology

An area of study which focuses on the scientific study of atmospheric constituents, reactions, measurement techniques, and processes in predictive, current and historical contexts. Includes instruction in climate modelling, gases and aerosols, trace gases, aqueous phase chemistry, sinks, transport mechanisms, computer measurement, climate variability, paleoclimatology, climate diagnosis, numerical modelling and data analysis, ionisation, recombination, photoemission, and plasma chemistry.

140303 Atmospheric Physics and Dynamics

An area of study which focuses on the scientific study of the processes governing the interactions, movement, and behaviour of atmospheric phenomena and related terrestrial and solar phenomena. Includes instruction in cloud and precipitation physics, solar radiation transfer, active and passive remote sensing, atmospheric electricity and acoustics, atmospheric wave phenomena, turbulence and boundary layers, solar wind, geomagnetic stores, coupling, natural plasma and energisation.

140304 Meteorology

An area of study which focuses on the scientific study of the prediction of atmospheric motion and climate change. Includes instruction in general circulation patterns, weather phenomena, atmospheric predictability, parameterisation, numerical and statistical analysis, large- and mesoscale phenomena, kinematic structures, precipitation processes, and forecasting techniques.

140399 Atmospheric Sciences and Meteorology, Other

Any area of study in atmospheric sciences and meteorology not listed above.

1404 Chemistry

140401 Chemistry, General

A general area of study that focuses on the scientific study of the composition and behaviour of matter, including its micro- and macrostructure, the processes of chemical change, and the theoretical description and laboratory simulation of these phenomena.

140402 Analytical Chemistry

An area of study which focuses on the scientific study of techniques for analysing and describing matter, including its precise composition and the interrelationships of constituent elements and compounds. Includes instruction in spectroscopy, chromatography atomic absorption, photometry, chemical modelling, mathematical analysis, laboratory analysis procedures and equipment maintenance, and applications to specific research, industrial and health problems.

140403 Inorganic Chemistry

An area of study which focuses on the scientific study of the elements and their compounds, other than the hydrocarbons and their derivatives. Includes instruction in the characterisation and synthesis of non-carbon molecules, including their structure and their bonding, conductivity, and reactive properties;

research techniques such as spectroscopy, X-ray diffraction, and photoelectron analysis; and the study of specific compounds, such as transition metals, and compounds composed of inorganic and organic molecules.

140404 Organic Chemistry
An area of study which focuses on the scientific study of the properties and behaviour of hydrocarbon compounds and their derivatives. Includes instruction in molecular conversion and synthesis, the molecular structure of living cells and systems, the mutual reactivity of organic and inorganic compounds in combination, the spectroscopic analysis of hydrocarbon compounds, and applications to specific problems in research, industry and health.

140405 Physical and Theoretical Chemistry
An area of study which focuses on the scientific study of the theoretical properties of matter, and the relation of physical forces and phenomena to the chemical structure and behaviour of molecules and other compounds. Includes instruction in reaction theory, calculation of potential molecular properties and behaviour, computer simulation of structures and actions, transition theory, statistical mechanics, phase studies, quantum chemistry, and the study of surface properties.

140406 Polymer Chemistry
An area of study which focuses on the scientific study of synthesised macromolecules and their interactions with other substances. Includes instruction in molecular bonding theory, polymerisation, properties and behaviour of unstable compounds, the development of tailored polymers, transition phenomena, and applications to specific industrial problems and technologies.

140407 Chemical Physics
An area of study which focuses on the scientific study of structural phenomena combining the disciplines of physical chemistry and atomic/molecular physics. Includes instruction in heterogeneous structures, alignment and surface phenomena, quantum theory, mathematical physics, statistical and classical mechanics, chemical kinetics, liquid crystals and membranes, molecular synthesis and design, and laser physics.

140499 Chemistry, Other
Any area of study in chemistry not listed above.

1405 Geography and Cartography

140501 Geography
An area of study which focuses on the systematic study of the spatial distribution and interrelationships of people, natural resources, plant and animal life. Includes instruction in historical and political geography, cultural geography, economic and physical geography, regional science, cartographic methods, remote sensing, spatial analysis, and applications to areas such as land-use planning, development studies, and analyses of specific countries, regions, and resources.

140502 Cartography
An area of study which focuses on the systematic study of map making and the application of mathematical, computer, and other techniques to the science of mapping geographic information. Includes instruction in cartographic theory and map projections, computer-assisted cartography, map design and layout, photogrammetry, air photo interpretation, remote sensing, cartographic editing, and applications to specific industrial, commercial, research, and governmental mapping problems.

140503 Environmental Science

An area of study which focuses on the application of biological, chemical, and physical principles to the study of the physical environment and the solution of environmental problems, including subjects such as abating or controlling environmental pollution and degradation; the interaction between human society and the natural environment; and natural resources management. Includes instruction in biology, chemistry, physics, geosciences, climatology, statistics, and mathematical modelling.

140504 Natural Resources and Environmental Management and Policy

An area of study which prepares individuals to plan, develop, manage, and evaluate programmes to protect natural habitats and renewable natural resources. Includes instruction in the principles of wildlife and conservation biology, environmental science, animal population surveying, natural resource economics, management techniques for various habitats, applicable law and policy, administrative and communications skills, and public relations.

140599 Geography and Cartography, Other

Any area of study in geography and cartography not listed above.

1406 Geology and Earth Sciences/Geosciences

140601 Geology/Earth Science, General

An area of study which focuses on the scientific study of the earth; the forces acting upon it; and the behaviour of the solids, liquids and gases comprising it. Includes instruction in historical geology, geomorphology and sedimentology, the chemistry of rocks and soils, stratigraphy, mineralogy, petrology, geostatistics, volcanology, glaciology, geophysical principles, and applications to research and industrial problems.

140602 Geochemistry

An area of study which focuses on the scientific study of the chemical properties and behaviour of the silicates and other substances forming, and formed by geomorphological processes of the earth and other planets. Includes instruction in chemical thermodynamics, equilibrium in silicate systems, atomic bonding, isotopic fractionation, geochemical modelling, specimen analysis, and studies of specific organic and inorganic substances.

140603 Geophysics and Seismology

An area of study which focuses on the scientific study of the physics of solids and its application to the study of the earth and other planets. Includes instruction in gravimetric, seismology, earthquake forecasting, magnetrometry, electrical properties of solid bodies, plate tectonics, active deformation, thermodynamics, remote sensing, geodesy, and laboratory simulations of geological processes.

140604 Palaeontology

An area of study which focuses on the scientific study of extinct life forms and associated fossil remains, and the reconstruction and analysis of ancient life forms, ecosystems and geologic processes. Includes instruction in sedimentation and fossilisation processes, fossil chemistry, evolutionary biology, paleoecology, paleoclimatology, trace fossils, micropaleontology, invertebrate palaeontology, vertebrate palaeontology, paleobotany, field research methods, and laboratory research and conservation methods.

140605 Hydrology and Water Resources Science
An area of study which focuses on the scientific study of the occurrence, circulation, distribution, chemical and physical properties, and environmental interaction of surface and subsurface waters, including groundwater. Includes instruction in geophysics, thermodynamics, fluid mechanics, chemical physics, geomorphology, mathematical modelling, hydrologic analysis, continental water processes, global water balance, and environmental science.

140606 Geochemistry and Petrology
An area of study which focuses on the scientific study of the igneous, metamorphic, and hydrothermal processes within the earth and the mineral, fluid, rock and ore deposits resulting from them. Includes instruction in mineralogy, crystallography, petrology, volcanology, economic geology, meteoritics, geochemical reactions, deposition, compound transformation, core studies, theoretical geochemistry, computer applications, and laboratory studies.

140607 Oceanography, Chemical and Physical
An area of study which focuses on the scientific study of the chemical components, mechanisms, structure, and movement of ocean waters and their interaction with terrestrial and atmospheric phenomena. Includes instruction in material inputs and outputs, chemical and biochemical transformations in marine systems, equilibrium studies, inorganic and organic ocean chemistry, oceanographic processes, sediment transport, zone processes, circulation, mixing, tidal movements, wave properties, and seawater properties.

140699 Geology and Earth Sciences/Geosciences, Other
Any area of study in geology and earth sciences/geosciences not listed above.

1407 Physics

140701 Physics, General
A general area of study that focuses on the scientific study of matter and energy, and the formulation and testing of the laws governing the behaviour of the matter-energy continuum. Includes instruction in classical and modern physics, electricity and magnetism, thermodynamics, mechanics, wave properties, nuclear processes, relativity and quantum theory, quantitative methods, and laboratory methods.

140702 Atomic/Molecular Physics
An area of study which focuses on the scientific study of the behaviour of matter-energy phenomena at the level of atoms and molecules. Includes instruction in chemical physics, atomic forces and structure, fission reactions, molecular orbital theory, magnetic resonance, molecular bonding, phase equilibria, quantum theory of solids, and applications to the study of specific elements and higher compounds.

140703 Elementary Particle Physics
An area of study which focuses on the scientific study of the basic constituents of sub-atomic matter and energy, and the forces governing fundamental processes. Includes instruction in quantum theory, field theory, single-particle systems, perturbation and scattering theory, matter-radiation interaction, symmetry, quarks, capture, Schroedinger mechanics, methods for detecting particle emission and absorption, and research equipment operation and maintenance.

140704 Plasma and High Temperature Physics
An area of study which focuses on the scientific study of properties and behaviour of matter at high temperatures, such that molecular and atomic structures are in a disassociated ionic or electronic state. Includes instruction in

magnetohydrodynamics, free electron phenomena, fusion theory, electromagnetic fields and dynamics, plasma and non-linear wave theory, instability theory, plasma shock phenomena, quantitative modelling, and research equipment operation and maintenance.

140705 Nuclear Physics
An area of study which focuses on the scientific study of the properties and behaviour of atomic nuclei instruction in nuclear reaction theory, quantum mechanics, energy conservation, nuclear fission and fusion, strong and weak atomic forces, nuclear modelling, nuclear decay, nucleon scattering, pairing, photon and electron reactions, statistical methods, and research equipment operation and maintenance.

140706 Optics/Optical Sciences
An area of study which focuses on the scientific study of light energy, including its structure, properties and behaviour under different conditions. Includes instruction in wave theory, wave mechanics, electromagnetic theory, physical optics, geometric optics, quantum theory of light, photon detecting, laser theory, wall and beam properties, chaotic light, non-linear optics, harmonic generation, optical systems theory, and applications to engineering problems.

140707 Solid State and Low Temperature Physics
An area of study which focuses on the scientific study of solids and related states of matter at low energy levels, including liquids and dense gases. Includes instruction in statistical mechanics, quantum theory of solids, many-body theory, low temperature phenomena, electron theory of metals, band theory, crystalline structures, magnetism and superconductivity, equilibria and dynamics of liquids, film and surface phenomena, quantitative modelling, and research equipment operation and maintenance.

140708 Acoustics
An area of study which focuses on the scientific study of sound, and the properties and behaviour of acoustic wave phenomena under different conditions. Includes instruction in wave theory, the acoustic wave equation, energy transformation, vibration phenomena, sound reflection and transmission, scattering and surface wave phenomena, singularity expansion theory, ducting, and applications to specific research problems such as underwater acoustics, crystallography and health diagnostics.

140709 Theoretical and Mathematical Physics
An area of study which focuses on the scientific and mathematical formulation and evaluation of the physical laws governing, and models describing, matter-energy physics, and the analysis of related experimental designs and results. Includes instruction in classical and quantum theory, computational physics, relativity theory, field theory, mathematics of infinite series, vector and coordinate analysis, wave and particle theory, advanced applied calculus and geometry, analyses of continuum, cosmology, and statistical theory and analysis.

140799 Physics, Other
Any area of study in physics not listed above

1499 Physical Sciences, Other
Any area of study in physical sciences not listed above.

CESM 15: MATHEMATICS AND STATISTICS

A broad area of study concerned with logical symbolic language and its applications to the solution of functional problems and to obtain and analyse data in order to make sound inferences in the face of uncertainty.

1501 Mathematics

150101 Mathematics, General
A general area of study that focuses on the analysis of quantities, magnitudes, forms, and their relationships, using symbolic logic and language. Includes instruction in algebra, calculus, functional analysis, geometry, number theory, logic, topology and other mathematical specialisations.

150102 Algebra and Number Theory
An area of study which focuses on the expression of quantities and their relationships by means of symbols, vectors, matrices and equations, and the properties of integers. Includes instruction in algebraic structures, quadratic and automorphic forms, combinatorics, linear algebra, and algebraic geometry.

150103 Analysis and Functional Analysis
An area of study which focuses on the properties and behaviour of equations, multivariate solutions, functions, and dynamic systems. Includes instruction in differential equations, variation, approximations, complex variables, integrals, harmonic analysis and wavelet theory, dynamic systems, and applications to mathematical physics.

150104 Geometry/Geometric Analysis
An area of study which focuses on the properties, measurements, and relationships pertaining to points, lines, angles, surfaces, and solids. Includes instruction in global analysis, differential geometry, Euclidian and Non-Euclidian geometry, set theory, manifolds, integral geometry, and applications to algebra and other topics.

150105 Topology and Foundations
An area of study which focuses on the properties of unaltered geometric configurations under conditions of continuous, multi-directional transformations. Includes instruction in mathematical logic, proof theory, model theory, set theory, combinatorics, continua, homotopy, homology, links, and transformation actions.

150199 Mathematics, Other
Any area of study in mathematics not listed above.

1502 Applied Mathematics

150201 Applied Mathematics, General
An area of study which focuses on the application of mathematics and statistics to the solution of functional problems in fields such as engineering and the applied sciences. Includes instruction in natural phenomena modelling continuum mechanics, reaction-diffusion, wave propagation, dynamic systems, numerical analysis, controlled theory, asymptotic methods, variation, optimisation theory, inverse problems, and application to specific scientific and industrial topics.

150202 Computational Mathematics
An area of study which focuses on the application of mathematics to the theory, architecture, and design of computers, computational techniques, and algorithms.

Includes instruction in computer theory, cybernetics, numerical analysis, algorithm development, binary structures, combinatorics, advanced statistics, and related topics.

150299 Applied Mathematics, Other
Any area of study in applied mathematics not listed above.

1503 Statistics

150301 Statistics, General
A general area of study that focuses on the relationships between groups of measurements, and similarities and differences, using probability theory and techniques derived from it. Includes instruction in the principles in probability theory, binomial distribution, regression analysis, standard deviation, stochastic processes, Monte Carlo method, Bayesian statistics, non-parametric statistics, sampling theory, and other statistical techniques.

150302 Mathematical Statistics and Probability
An area of study which focuses on the mathematical theory underlying statistical methods and their use. Includes instruction in probability theory, parametric and non-parametric inference, sequential analysis, multivariate analysis, Bayesian analysis, experimental design, time series analysis, resampling, robust statistics, limit theory, infinite particle systems, stochastic processes, martingales, Markov processes, and Banach spaces.

150399 Statistics, Other
Any area of study in statistics not listed above.

1599 Mathematics and Statistics, Other

Any area of study in mathematics and statistics not listed above.

CESM 16: MILITARY SCIENCES

The scientific study of the socio-political and geo-spatial environment in which the defence system of the country operates; the organisational dynamics of the military as an institution; the human and material resources required to execute its mission, and the application of this knowledge in the management of the security challenges facing the country.

1601 Defence Organisation and Resource Management

160101 Military Accounting and Auditing
The study of accounting and auditing with specific reference to a military context. Includes instruction in financial accounting fundamentals and management accounting with reference to internal control and audit, cost accounting, control systems, performance measurement systems, strategic management accounting.

160102 Military Economics
The study of economics in a military context, including instruction in micro- and macro-economics, monetary economics, international economics, applied economics, quantitative economics and defence economics.

160103 Military Management
The study of management as it applies to a military context. Includes instruction in areas such as logistic, financial, strategic and systems management.

160104 Military Public and Development Management
An area of study incorporating budgeting, labour relations, development management, organisational science, administrative law, public management, public policy analysis and civil military relations.

160199 Defence Organisation and Resource Management, Other
Any area of study in defence organisation and resource management not listed above.

1602 Military Human Resource Management and Development

160201 Military Sociology
An area of study covering the sociological implications such as the relationship between the armed forces and society, social change, organisational change and restructuring. Includes instruction in diversity, armed forces and social institutions and the sociology of war.

160202 Military Industrial Psychology
An area of study covering areas such as human and organisational development, military career psychology, cultural diversity, organisational psychology and management of operational psychopathology.

160299 Military Human Resource Management and Development, Other
Any area of study in military human resources management and development not listed above.

1603 Military Technology and Applied Physical Science

160301 Military Aeronautical Science
An area of study covering various aspects of aviation theory. Includes areas such as airmanship, aerodynamics, meteorology, flight simulation, instruments and magnetism, avionics, helicopter and high speed aerodynamics, and other aspects of military aeronautical science.

160302 Military Technology
An area of study covering military technology areas such as fluid mechanics, numerical techniques, information and electronic warfare, military aerospace and related technologies.

160303 Military Nautical Science
An area of study which prepares military students in navigational theory, navigation systems, marine engineering principles, ship stability and naval architecture.

160304 Military Mathematics
An area of study covering areas of mathematics as applied to military technology and behaviour. Includes instruction in calculus, linear algebra, analysis topology, numerical analyses, probability theory and statistical inference.

160305 Military Physics
An area of study covering the military applications of various areas of physical science. Includes instruction in mechanics, waves and optics, electricity and thermodynamics, nuclear physics and applied computer physics.

160306 Military Geography
An area of study covering geographical concepts and techniques and their relevance to military training. Includes instruction in the physical environment, military conduct and the environment, the geography of Sub-Saharan Africa, military terrain analysis and political geography.

160307 Military Computer Information Systems
An area of study which prepares individuals in various aspects of computer information systems as relevant to the military context. Includes instruction in information systems theory and practice, software engineering and object-oriented programming, cyber warfare and data communication networks, and digital economy and electronic commerce.

160399 Military Technology and Applied Physical Science, Other
Any area of study in military technology and applied physical science not listed above.

1604 Military Security Studies

160401 Military History
An area of study covering the following areas: general military history to 1914, military history of Africa to 1945, South African military history, the first and second world wars, contemporary warfare 1946-1991, low-intensity conflict in Africa since 1945, philosophy and historiography.

160402 Military Strategy
An area of study covering various aspects of military strategy. Includes instruction in strategic thoughts and concepts, African security and defence policy, the national security of Southern African states and advanced study of military and operational strategy.

160403 Military Political Science

An area of study covering the following areas: introduction to Political Science, international relations and civil-military relations, South Africa and the international community, African politics and political thought, African and international political economy, international political theory, South African political-military profile in Africa, international conflict resolution and peace keeping.

160499 Military Security Studies, Other

Any area of study in military security studies not listed above.

1605 Military Professional Development

160501 Military Professional Development

A generic area of study aimed at empowering all military science students with the knowledge, skills and attitudes to (irrespective of the specific programme enrolled for): (a) Understand the socio-political and geo-spatial environment within which the Department of Defence operates; (b) Understand the organisational environment with the Department of Defence, (c) Be able to interpret the contemporary security environment and react appropriately to it; (d) Be able to function as leaders within the security environment in Africa; (e) Practice values, norms and behaviour that are commensurate with the prevailing understanding of military professionalism.

1699 Military Sciences, Other

Any area of study in military science not listed above.

CESM 17: PHILOSOPHY, RELIGION AND THEOLOGY

A broad area of study concerned with the critical analysis of and reflection on the ideas, theories, categories, concepts and methods for describing and evaluating human experience and reality.

A broad area of study concerning religion and different theologies, namely Buddhism, Christianity, Hinduism, Islam, Judaism and African indigenous religions.

1701 Philosophy

170101 Philosophy, General
An area of study which focuses on ideas and their logical structure, including arguments and investigations about abstract and real phenomena. Includes instruction in logic, ethics, aesthetics, epistemology, metaphysics, symbolism, and history of philosophy, and applications to the theoretical foundations and methods of other disciplines.

170102 Main Philosophical Currents and Trends
The study of the main philosophical trends in philosophy, its presuppositions, ideas, strategies and categories for solving philosophical puzzles, and of the interrelationships between different philosophical currents. Includes philosophy of science which focuses on the objectives, methodology and limitations of science and the validity of scientific theories.

170103 Logic
An area of study which focuses on the systematic study of valid inference, argument, and sound reasoning. Includes instruction in classical logic, properties of argument, validity, proof, fallacies, formal and material logic, symbolic and mathematical logic, analysis, specific schools of logic, and applications to problems in other academic disciplines and professional fields.

170104 Ethics
An area of study which focuses on the systematic study of the theory of moral good and its application to various theoretical and practical problems. Includes instruction in ethical theory, history of ethics, belief and value systems, ethical constructs, and applications to specific topics, issues and problems.

170199 Philosophy, Other
Any area of study in Philosophy not listed above.

1702 Religion

170201 Religion
A general area of study which focuses on the nature of religious belief and specific religious and quasi-religious systems. Includes instruction in phenomenology; the sociology, psychology, philosophy, anthropology, literature and art of religion; mythology; scriptural and textual studies; religious history and politics.

1703 Theology

170301 African Indigenous Religions
An area of study which focuses on the cultural, religious and spiritual phenomena indigenous to the continent of Africa - such as African conceptions of God(s) and the cosmos.

170302 Buddhism

An area of study which focuses on the philosophy preached by Siddartha Gautama, the Buddha, in ancient India and subsequently interpreted by his followers and evolving into a religion; together with the intellectual, cultural, social, and ritual developments of the faith and its branches. Includes instruction in Buddhist sacred literature (Tipitaka, etc.) and study of one or more of the main branches including Early Buddhism, Hinayana, Theravada, Madhyamaka, Yogacara, Pure Land, Shingon, Tendai, Nichiren Shu, Zen, Tibetan, Chinese, Korean, Vietnamese, and others.

170303 Christianity

The study of Christian theology focuses on the foundational documents, of the history and development, and of the faith, ethics and practices of the Christian church and tradition, and therefore includes scholarly disciplines like systematic theology/dogmatics, practical/pastoral theology (with its sub-disciplines), contextual theologies, theological ethics, hermeneutics, missiology, ecumenics, church law, church history, and Biblical studies (with its sub-disciplines Hebrew Bible/Old Testament and New Testament, making use of languages like Hebrew, Aramaic and Greek).

170304 Hinduism

An area of study which focuses on the group of South Asian theologies and philosophies collectively known as Hinduism; together with the religious history and cultural and social manifestations of the faith. Includes instruction in Hindu theology and philosophy (dharma); literature (Vedas, Upanishads, Epics, and commentaries); the Hindu Pantheon, sects, and movements; schools and disciplines; and related arts and sciences.

170305 Islam

An area of study which focuses on Islam as preached by the Prophet Muhammad in 7th century Arabia and subsequently interpreted and elaborated by Muslim scholars and others; together with the cultural and social milieu related to the faith in various periods, localities and branches. Includes instruction in Muslim scripture and related written authorities and commentaries (Qur'an, Tafsir, Hadith/Sunnah, Sirah); Islamic law and jurisprudence; the various branches of Muslim theology including Sunni, Shi'a, Sufism and others; as well as the development of the religion of Islam and Muslim society from the beginnings to the present.

170306 Judaism

An area of study which focuses on the history, culture, and religion of the Jewish people. Includes instruction in Jewish religious heritage, sacred texts, and law; Jewish philosophy and intellectual history; Jewish life and culture, both in Israel and the Jewish Diaspora; historical Jewish minority cultures such as the Yiddish, Sephardic, and other; anti-Semitism, gentile relations and Shoa; Zionism; and modern developments within Judaism.

170399 Theology, Other

Any area of study in theology not listed above.

1799 Philosophy, Religion and Theology, Other

Any area of study in philosophy, religion and theology not listed above.

CESM 18: PSYCHOLOGY

A broad area of study which focuses on the behaviour of individuals, independently or collectively, and the physical and environmental bases of mental, emotional and neurological development and processes.

1801 Psychology, General

180101 Psychology, General
A general area of study that focuses on the scientific study of individual and collective behaviour, the physical and environmental bases of behaviour, and the analysis and treatment of behaviour problems and disorders. Includes instruction in the principles of the various subfields of psychology, research methods, and psychological assessment and testing methods.

1802 Clinical Psychology

180201 Clinical Psychology, General
An area of study which offers introductory undergraduate studies in clinical psychology, involving the analysis, diagnosis and clinical treatment of psychological disorders and behavioural pathologies.

180202 Clinical Child Psychology
An area of study which focuses on the developmental processes of children and associated disorders and that prepares individuals for the independent professional practice of clinical child psychology. Includes instruction in developmental neuropsychology, child psychopathology, testing of children and adolescents, paediatric psychology, psychosocial variables in child development, clinical skills, family therapy, behavioural assessment and intervention, clinical skills, consultation, professional standards and ethics, and applications to topics such as infancy, childhood and adolescence.

180203 Clinical Psychology, Professional Studies
A postgraduate area of study that prepares individuals for the independent professional practice of clinical psychology, involving the analysis, diagnosis, and clinical treatment of psychological disorders and behavioural pathologies. Includes instruction in clinical assessment and diagnosis, personality appraisal, psychopathology, clinical psychopharmacology, behaviour modification, therapeutic intervention skills, patient interviewing, personalised and group therapy, child and adolescent therapy, cognitive and behavioural therapy, supervised clinical practice, ethical standards and applicable regulations.

180299 Clinical Psychology, Other
An area of study in clinical psychology not listed above

1803 Cognitive Psychology and Psycholinguistics

180301 Cognitive Psychology and Psycholinguistics
An area of study which focuses on the scientific study of the mechanisms and processes of learning and thinking, and associated information encoding, decoding, processing and transmitting systems. Includes instruction in theories of cognition and intelligence, studies of cognitive processes such as memory, sensation and perception, pattern recognition, problem solving, and conceptual

thinking, cybernetics, psycholinguistics, and the study of biological and social communications mechanisms and processes.

1804 Community Psychology

180401 Community Psychology

An area of study which prepares individuals to apply psychological principles to the analysis of social problems, and the implementation of intervention strategies for addressing these problems. Includes instruction in social ecology, primary and secondary prevention of social pathologies, social intervention strategies and tactics, large group counselling, social services systems behaviour, creating settings, cultural stress, and the dynamics of social change.

1805 Comparative Psychology

180501 Comparative Psychology

An area of study which focuses on the behaviour of members of particular species or groups and the relationship of the behaviours of the species or group to the evolutional origins. Includes instruction in differential psychology, experimental and physiological psychology, psychopharmacology, psychology of individual differences, reinforcement theory, and neurophysiology.

1806 Counselling Psychology

180601 Counselling Psychology

An area of study which prepares individuals for the independent professional practice of psychological counselling, involving the rendering of therapeutic services to individuals and groups experiencing psychological problems and exhibiting distress symptoms. Includes instruction in counselling theory, therapeutic intervention strategies, patient/counsellor relationships, testing and assessment methods and procedures, group therapy, marital and family therapy, child methods and procedures, group therapy, marital and family therapy, child and adolescent therapy, supervised counselling practice, ethical standards, and applicable regulations.

180602 Family Psychology

An area of study which prepares individuals to provide therapeutic, evaluative and research services to families and individuals in the family unit context. Includes instruction in natural and family systems theory, family and group rituals, family evaluation and assessment, marital and couples therapy, sex therapy, parenting, interviewing techniques, genogram construction, family sculpting, diversity issues, family violence, family law, and professional standards and ethics.

180603 Marriage and Family Therapy/Counselling

An area of study which prepares individuals for the independent professional practice of marriage and family therapy, involving the diagnosis of cognitive, affective and behavioural domain disorders, both mental and emotional, within the context of marriage and family systems and the application of short- and long-term therapeutic strategies in family group contexts. Includes instruction in psychotherapy, family systems and studies, small group intervention and therapy, marital problems, depression, identification of psychopathologies and behavioural disorders, holistic health care, practice management, applicable regulations, and professional standards and ethics.

180699 Counselling Psychology, Other

An area of study in counselling psychology not listed above.

1807 Developmental and Child Psychology

180701 Developmental and Child Psychology

An area of study which focuses on the scientific study of the psychological growth and development of individuals from infancy through to adulthood. Includes instruction in cognitive and perceptual development, emotional development, personality development, the effects of biological maturation on behaviour, theories of cognitive growth and related research methods, testing and assessment methods for different age levels, research on child and adolescent behaviour therapy and the psychology of ageing.

1808 Educational Psychology

180801 Educational Psychology

An area of study which focuses on the application of psychology to the study of the behaviour of individuals in the roles of teacher and learner, the nature and effects of learning environments, and the psychological effects of methods, resources, organisation and non-school experience on the educational process. Includes instruction in learning theory, human growth and development, research methods and psychological evaluation.

180802 School Psychology

An area of study which prepares individuals to apply clinical and counselling psychology principles to the diagnosis and treatment of student behavioural problems. Includes instruction in child and/or adolescent development; learning theory; testing, observation and other procedures for assessing educational, personality, intelligence and motorskill development; therapeutic intervention strategies for students and families; identification and classification of disabilities and disorders affecting learning; school psychological services planning; supervised counselling practice; ethical standards; and applicable regulations.

180899 Educational Psychology, Other

An area of study in educational psychology not listed above.

1809 Environmental Psychology

180901 Environmental Psychology

An area of study which focuses on the study of behavioural interactions between human beings and the environment in individual and group contexts, and ways to improve them. Includes instruction in contextual theory; statistics; physiological, social and psychological responses to natural and technological hazards and disease; environmental perception and cognition; loneliness and stress; psychological aspects of environmental design and planning.

1810 Research Methodology for Psychology

181001 Research Methodology for Psychology

An area of study focusing on theorising, concepts and hypotheses; the planning and execution of research projects, selection of research participants, ethical standards; hypothesis testing, power and control, statistical inferences and the writing of research reports; the various types of experimental design, such as designs for independent groups, dependent groups, mixed groups and single-participant studies; non-experimental designs, such as quasi-experimental, longitudinal, cross-sectional designs, case studies and correlational studies; observational research and surveys, as well as programme evaluation, archival research and meta-analytic designs.

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1811 Forensic Psychology

181101 Forensic Psychology

An area of study which prepares individuals to apply clinical, counselling, school and neuropsychology skills to the provision of psychological services within the criminal justice and civil legal systems, including consultation, assessment and interventions. Includes instruction in the epidemiology of mental/behavioural disorders, risk factors for violence and criminality, profiling and patterning, psychological testing, prediction and intervention measurement, forensic assessment, criminal and civil law and procedures, secure environments, forensic treatment and intervention skills, and professional standards and ethics.

1812 Geropsychology

181201 Geropsychology

An area of study which focuses on the psychology of ageing and of elderly individuals and populations, with reference to growth and decline across the life span. Includes instruction in gerontology, developmental and adult psychology, age-related psychological and neurological disorders, social and personality development in ageing populations and individuals, and applications to the clinical treatment and care of older adults.

1813 Health/Medical Psychology

181301 Health/Medical Psychology

An area of study which focuses on the psychological study of health and illness, and recovery, from the perspective that these phenomena arise from a combination of physical, behavioural and social conditions. Includes instruction in abnormal and social psychology, psychophysiology, an introduction to psychopharmacology, learning processes, clinical and behavioural therapies, biopsychosocial modelling, clinical procedures and assessment, preventive education, psychotherapy, rehabilitation processes, and research methods.

181302 Psychopharmacology

An area of study which focuses on the study of the behavioural effects of medications, drugs, nutrients, and chemicals (including natural and artificial toxins) in laboratory and clinical settings. Includes instruction in pharmacology, behavioural toxicology and pharmacology, neuroscience, physiology, clinical psychopharmacology, substance abuse treatments and antidotes, neurochemical mechanisms, epidemiology of chemicals and substances, biochemical interactions, and psychoactive drugs.

181399 Health/Medical Psychology, Other

An area of study in health/medical psychology not listed above

1814 Industrial and Organisational Psychology

181401 Industrial and Organisational Psychology, General

An area of study which focuses on the scientific study of individual and group behaviour in organisational settings and the physical environmental context within which productive behaviour occurs; the application of the paradigms, theories, models, constructs and principles of psychology to issues related to the world of work in order to enhance the effectiveness of individual, group and organisational behaviour and the well-being of the participants.

181402 Occupational and Career Psychology

An area of study which focuses on individual differences, developmental challenges, career models, career choice, entry into the world of work, career

development, career stages, occupational challenges, and management and support systems.

181403 Organisational Psychology

An area of study which focuses on intra-individual variables, like personality traits, perceptions, attitudes, values, and motivation which affect organisational behaviour; interpersonal, group and intergroup behaviours, like leadership, power relations, decision-making and communication; organisational structure and design, organisational culture, organisational change and development.

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181404 Occupational Health, Well-being and Performance Dysfunction in the Workplace

An area of study which focuses on individual differences in health and well-being in organisations, improving worker health through interventions, group/team and normative influences on health and well-being, antisocial work behaviour and organisational health, employee assistance programmes, workplace health promotion, integration and future directions, the management of HIV/AIDS in the workplace. Why people fail in their jobs, a systematic performance analysis approach to the solution of ineffective performance, the development of taxonomy of work-related performance dysfunctions, broad areas of work dysfunction, dysfunctional working conditions, diagnosis of work-related dysfunctions, prevention and management of performance dysfunctions.

181499 Industrial and Organisational Psychology, Other

An area of study in industrial and organisational psychology not listed above.

1815 Personality Psychology

181501 Personality Psychology

An area of study which focuses on the unique organisation of fairly permanent characteristics that set the individual apart from other individuals and, at the same time, determine how others respond to that individual. Includes instruction in Freudian, Skinnerian, Rogerian, and Ellisonian psychology; neo-Freudian psychology; psychological systems, neurophysiology and psychopharmacology.

1816 Physiological Psychology/Psychobiology

181601 Physiological Psychology/Psychobiology

An area of study which focuses on the scientific course study of the biological bases of psychological functioning, and their application to experimental and therapeutic research problems. Includes instruction in functional neuroanatomy, neural system development, biochemical neural regulatory mechanisms, neurological biophysics, memory storage and retrieval, physiology of cognition and perception, physiological bases of psychopathology and behavioural disorders, psychopharmacology, comparative psychobiology, and specialised experimental design and research methods.

181602 Biopsychology

An area of study which focuses on biological and psychological linkages, especially the linkages between biochemical and biophysical activity and the functioning of the central nervous system.

181603 Neuropsychology

An area of study which focuses on brain-behaviour relations. Core elements are knowledge of neoroanatomy and pathology, psychological assessment of cognitive and emotional functioning (including psychometric assessments) and clinical skills.

181699 Physiological Psychology/Psychobiology, Other
An area of study in physiological psychology/psychobiology not listed above.

1817 Psychometrics and Applied Psychological Assessment

181701 Psychometrics and Quantitative Psychology
An area of study which focuses on the mathematical and statistical procedures used in psychological test construction and validation and the general problems associated with the measurement and prediction of behaviour.

181702 Applied Psychological Assessment
An area of study which focuses on the practical implementation of psychological tests and other assessment instruments in an appropriate, professional and ethical manner, based on the body of knowledge regarding the psychometric properties of the measuring instruments, good testing practices, and contextual factors that may influence the assessment, for the purposes of decision-making about the test-taker.

181799 Psychometrics and Applied Psychological Assessment, Other
An area of study in psychometrics and applied psychological assessment not listed above.

1818 Social Psychology

181801 Social Psychology, General
An area of study which focuses on the scientific study of individual behaviour in group contexts, group behaviour, and associated phenomena. Includes instruction in social learning theory, group theory and dynamics, sex roles, social cognition and inference, attribution theory, attitude formation, criminal behaviour and other social pathologies, altruistic behaviour, social development, human diversity, crisis intervention and social ecology.

181802 Positive Psychology
An area of study which focuses on the scientific study of the nature, manifestations, patterns, origins, dynamics and enhancement of strengths, resilience and psycho-social well-being (optimal functioning) on individual, group and community levels. This includes positive emotional states, traits and institutions, and instruction is on constructs, theories, measurements and applications in various phases of life and in different contexts.

181899 Social Psychology, Other
Any area of study in social psychology not listed above.

1899 Psychology, Other

Any area of study in psychology not listed above.

CESM 19: PUBLIC MANAGEMENT AND SERVICES

A broad area of study concerned with the formulation, implementation, administration, evaluation and management of public policies, programmes and services, including criminal justice and correctional services.

1901 Human Services

190101 Human Services, General
An area of study which focuses on the general study and provision of human and social services to individuals and communities and prepares individuals to work in public and private human services agencies and organisations. Includes instruction in the social sciences, psychology, principles of social service, human services policy, planning and evaluation, social services law and administration, and applications to particular issues, services, localities, and populations.

1902 Community Organisation and Advocacy

190102 Community Organisation and Advocacy
An area of study which focuses on the theories, principles, and practice of providing services to communities, organising communities and neighbourhoods for social action, serving as community liaisons to public agencies, and using community resources to furnish information, instruction, and assistance to all members of a community. May prepare individuals to apply such knowledge and skills in community service positions.

1903 Public Administration

190301 Public Administration
An area of study which prepares individuals to serve as managers in the executive arm of local, provincial and national government, and that focuses on the systematic study of executive organisation and management. Includes instruction in the roles, development, and principles of public administration; the management of public policy; executive-legislative relations; public budgetary processes and financial management; administrative law; public personnel management; professional ethics; and research methods.

1904 Public Policy Analysis

190401 Public Policy Analysis
An area of study which focuses on the systematic analysis of public policy issues and decision processes. Includes instruction in the role of economic and political factors in public decision making and policy formulation; microeconomic analysis of policy issues; resource allocation and decision modelling; cost/benefit analysis; statistical methods; and applications to specific public policy topics.

1905 Criminal Justice and Corrections

190501 Corrections
An area of study which prepares individuals to study the theories and principles, of correctional science and to function as professional corrections officers and other workers in public and/or private incarceration facilities.

190502 Criminal Justice/Law Enforcement Administration
An area of study which prepares individuals to apply theories and practices of criminal justice to structuring, managing, directing and controlling criminal justice

agencies, including police departments, law enforcement divisions and units, and private protective services.

190503 Criminal Justice/Safety Issues
An area of study which focuses on the criminal justice system, its organisational components and processes, and its legal and public policy contexts. Includes instruction in criminal law and policy, police and correctional systems organisation, the administration of justice and the judiciary, and public attitudes regarding criminal justice issues.

190504 Forensic Science and Technology
An area of study which focuses on the application of the physical, biomedical, and social sciences to the analysis and evaluation of physical evidence, human testimony and criminal suspects. Includes instruction in forensic medicine, forensic dentistry, anthropology, psychology, pathology, forensic laboratory technology, crime scene analysis, fingerprint technology, document analysis, pattern analysis, examination procedures, applicable law and regulations, and professional standards and ethics.

190505 Criminal Justice/Police Science
An area of study which prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control and public relations, witness interviewing, evidence collection and management, basic crime prevention methods, weapon and equipment operation and maintenance, report preparation and other routine law enforcement responsibilities.

190506 Juvenile Corrections
An area of study which prepares individuals to specialise in the provision of correction services to underage minor populations. Includes instruction in corrections, juvenile delinquency, juvenile development and psychology, juvenile law, and justice administration, social services, record-keeping procedures, and communication skills.

190507 Criminalistics and Criminal Science
An area of study which focuses on the application of clinical and criminal laboratory science, investigative techniques, and criminology to the reconstruction of crimes and the analysis of physical evidence. Includes instruction in laboratory science, laboratory procedures, criminology and police science, evidentiary testing and analysis, computer applications, record-keeping, reconstruction techniques, evidence handling and storage, and applications to specific types of evidence and crimes.

190508 Corrections Management
An area of study which prepares individuals to plan and manage institutional facilities and programmes for housing and rehabilitating prisoners in the public and/or private sectors. Includes instruction in the principles and practice of correction, facilities planning and management, safety and security, social and health services, staff and inmate management, budgeting, communication skills, correctional psychology, and applications to specific types of correctional facilities approaches.

190599 Criminal Justice and Corrections, Other
Any area of study in criminal justice and corrections not listed above.

1999 Public Management and Services, Other
An area of study in public management and services not listed above.

CESM 20: SOCIAL SCIENCES

A broad area of study of social sciences, social institutions, and social behaviour, as well as the interpretation of past events, issues and cultures.

2001 Anthropology

200101 Social-Cultural Anthropology,
An area of study that focuses on the systematic and comparative study across space and time of human social and cultural behaviour, milieus and institutions and of knowledge construction and application processes. Includes instruction in anthropological and comparative linguistics, economic anthropology, ethnography, ethnology, ethnohistory, indigenous knowledge systems, kinship, political and legal anthropology, psychological and medical anthropology, public anthropology, ethnographic research methods, and applications to social domains such as development, the environment, health, international affairs and justice, migration, organisations, religious life and modern science.

200102 Physical (Biological) Anthropology
An area of study which focuses on the application of the biological sciences and anthropology to the study of the adaptations, variability, and the evolution of human beings and their living and fossil relatives. Includes instructions in anthropology, human and mammalian anatomy, cell biology, palaeontology, human culture and behaviour, neuroscience, forensic anthropology, anatomical reconstruction, comparative anatomy, and laboratory science and methods.

200199 Anthropology, Other
Any area of study in anthropology not listed above.

2002 Archaeology

200201 Archaeology
An area of study which focuses on the systematic study of extinct societies, and the past of living societies, via the excavation, analysis and interpretation of their artifactual, human, and associated remains. Includes instruction in archaeological theory, field methods, dating methods, conservation and museum studies, cultural and physical evolution, and the study of specific selected past cultures.

2003 History

200301 History, General
An area of study which focuses on the general study and interpretation of the past, including the gathering, recording, synthesising and criticising of evidence and theories about past events. Includes instruction in historiography; historical research methods; studies of specific periods, issues and cultures; and applications to areas such as historic preservation, public policy, and records administration.

200302 African History
An area of study which focuses on the development, changes, past events, discoveries, trends, individuals, institutions, ideas, artefacts, and the systematic accounting of other phenomena associated with the continent of Africa and its inhabitants, but excluding the detailed history of South Africa and its inhabitants.

200303 American (United States) History
An area of study which focuses on the development of American society, culture, and institutions from the Pre-Columbian period to the present. Includes instruction in American historiography, American history sources and materials, historical research methods, and applications to the study of specific themes, issues, periods, and institutions.

200304 Asian History
An area of study which focuses on the development of the societies, cultures, and institutions of the Asian Continent from their origins to the present. Includes instruction in the historiography of specific cultures and periods; sources and materials; historical research methods; and applications to the study of specific themes, issues, periods, and institutions.

200305 European History
An area of study which focuses on the development of European society, culture, and institutions from the origins to the present. Includes instruction in European historiography, European history sources and materials, historical research methods, and applications to the study of specific themes, issues, periods, and institutions.

200306 History and Philosophy of Science and Technology
An area of study which focuses on the historical evolution of scientific theories and science applications and technologies, as well as the philosophy of science and its historical socio-economic context. Includes instruction in the construction and methods of philosophical inquiry, historiography of science research methods in the history of the scientific and engineering disciplines, including mathematics.

200307 South African History
The detailed study of the development, changes, past events, discoveries, trends, individuals, institutions, ideas, artefacts, and the systematic accounting of other phenomena associated with South Africa and its inhabitants.

200308 History of Ancient Cultures
An area of study which focuses on the history of the ancient cultures of the Near East; an overview of the history, culture and political development of Ancient Greece; the social history of Ancient Rome; the development of the Roman legal system, constitutional development in Rome, basic Latin terms (legal and other) in general use today; and an overview of the history of other ancient cultures.

200399 History, Other
Any area of study in history not listed above.

2004 Library Science/Librarianship

200401 Library Science/Librarianship, General
An area of study which focuses on the knowledge and skills required to develop, organise, store, retrieve, administer, and facilitate the use of local, remote, and networked collections of information in print, audiovisual, and electronic formats and that prepares individuals for professional service as librarians and information consultants.

200402 Public/Applied History and Archival Administration
An area of study which focuses on the application of history and administrative skills to the recording of public events and the management of related historical resources. Includes instruction in historical research methods, archives and records management, the planning and administration of public records services

and history projects, and applications to specific problems in public organisations, government agencies, foundations, and records facilities.

200499 Library Science/Librarianship, Other
Any area of study in library science/librarianship not listed above.

2005 Museology/Museum Studies

200501 Museology/Museum Studies
An area of study which focuses on the attitudes, knowledge, and skills required to develop, prepare, organise, administer, conserve, store and retrieve artefacts, exhibits and entire collections in museums and galleries, and that prepares individuals to assume curatorial, technical and managerial positions in museums. Includes instruction in institutional management, acquisition, exhibit design, conservation, packing techniques, and public relations.

2006 Political Science and Government

200601 Political Science and Government, General
An area of study which focuses on the systematic study of political institutions and behaviour. Includes instruction in political philosophy, political theory, comparative government and politics, political parties and interest groups, public opinion, political research methods, studies of the government and politics of specific countries, and studies of specific political institutions and processes.

200602 Comparative Political Systems
An area of study which focuses on the study and comparative analysis of the similarities and differences of political institutions, processes, and behaviour in different countries and political subdivisions.

200603 Contemporary World Affairs
An area of study which focuses on the study of economic, sociological, political, legal, cultural, and other factors which influence the present relations between nations.

200604 International Relations and Affairs
An area of study which focuses on the systematic study of international politics and institutions, and the conduct of diplomacy and foreign policy. Includes instruction in international relations theory, foreign policy analysis, national security and strategic studies, international law and organisation, the comparative study of specific countries and regions, and the theory and practice of diplomacy.

200699 Political Science and Government, Other
Any area of study in political science and government not listed above.

2007 Sociology

200701 Sociology
An area of study which focuses on the systematic study of human social institutions and social relationships. Includes instruction in industrial sociology, social theory, sociological research methods, social organisation and structure, social stratification and hierarchies, dynamics of social change, family structures, social deviance and control, and applications to the study of specific social groups, social institutions, and social problems. Focuses also on the human impact on the environment and the individual and group behaviours with respect to health and illness.

200702 Demography and Population Studies.
An area of study which focuses on the systematic examination of population models and population phenomena, and related problems of social structure and behaviour. Includes instruction in population growth, spatial distribution, mortality and fertility factors, migration and its effects, urbanisation, dynamic population modelling, population estimation and projection, mathematical and statistical analysis of population data, population policy studies, and applications to problems in economics and government planning.

200703 The Sociology of Developing Societies
An area of study which focuses on developing societies. Issues such as development, underdevelopment, poverty and global stratification are addressed.

200799 Sociology, Other
An area of study in sociology not listed above.

2008 Social Work

200801 Social Work, General
An area of study which prepares individuals for the professional practice of social welfare administration and counselling, and that focuses on the study of organised means of providing basic support services for vulnerable individuals, groups and communities. Includes instruction in social welfare policy; case work planning; social counselling and intervention strategies; administrative procedures and regulations; and specific applications in areas such as child welfare and family services, probation, employment services, and disability counselling.

200802 Child and Youth Services/Administration
An area of study which prepares individuals to plan, manage, and implement social services for children, youth, and families. Includes instruction in child development and psychology, adolescence, family studies, social work, social services administration, juvenile and family law, programme and facilities planning, youth leadership, counselling, probation, casework, applicable procedures, and regulations, and professional standards and ethics.

200899 Social Work, Other
Any area of study in social work not listed above.

2099 Social Sciences, Other
Any area of study in the social sciences not listed above.