

Note:

This document on programmes offered by the Department of Computer Science is for polytechnic diploma holders admitted and matriculated in AY2005-6.

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Bachelor of Computing in Communications and Media

Overview

The 4-year **Bachelor of Computing in Communications and Media** aims to train students in the technological underpinnings of internet technologies as well as the required skills of media design and content creation tempered with a proper understanding of the social sciences. Therefore, the programme has been designed to achieve an integrated foundation in all these aspects. Since this programme involves aspects of computing and the arts and social sciences, it can be viewed from two perspectives:

TECHNOLOGY PERSPECTIVE:

- Foundation of IT: This refers to the basics of computing required to understand, design, and extend the internet-based systems.
- Information encoding, information customisation, content-repurposing: Information encoding, such as XML, is required for information to be mass communicated on the Internet and WWW. Customisation refers to the personalisation of information to individuals and groups which the technology allows, and repurposing refers to the customisation of information to the heterogeneous networks (wired and wireless) as well as the plethora of end-devices (static and mobile, with varying display plus communication capabilities).
- Text, multimedia information analysis and processing: These refer to the technological basis of the various digital media (text, image, graphics, audio and video) and the various types of processing, such as data-rate transformation and summarisation.
- Entertainment technology: This refers to technologies required to develop interactive games and virtual reality systems.
- Internet architecture: This refers to the technical aspects of the Internet including networking, client-server architecture, and issues related to scalability, reliability and availability.

CONTENT AND USER PERSPECTIVE:

- Foundation (sociology): This refers to the social science foundation required to contextualise the use of media for communication by individuals and groups in human society.
- Human-computer interaction: This refers to the human-centred design of intuitive and flexible interfaces for people to communicate via the end-devices of the internet fringes.
- Writing and media design for mass communication: This refers to the required arts background, which enables the creative use of digital media for the purpose of expression and communication. The media considered include hypertext, audio, image/graphics, and video.
- Mass communication on the Internet: This refers to the theoretical and empirical principles of mass communications on the WWW.

Degree Requirements

The Communications and Media programme degree requirement is at least 160 modular credits. Modules are classified as follows (note that every module can only be counted towards satisfying exactly one requirement):

(i) **PROGRAMME REQUIREMENTS**

Common Essentials

CS1101 or CS1101S	Programming Methodology
CS1102 or CS1102S	Data Structures and Algorithms
CS1104	Computer Organization
CS2102	Database Systems
CS2103	Software Engineering
CS2105	Introduction Computer Networks

Programme Essentials

Computing Related

CS1231	Discrete Structures
CS3224	Architecture of Internet ¹
CS3240	Human-Computer Interaction
CS3241	Computer Graphics
CS3242S	Hypermedia Technologies
CS4101	Honours Project
CS4102	Technical & Management Training

Communications and Media (CM) Related *

NM1101E	New Media and Society
NM2101	Theories of Communications and New Media

Choose either

NM2208	Principles of Visual Communication
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or

NM2210	Aesthetics of New Media
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IF3209/EL3271	Hypertext and the Electronic Author ²
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Choose either

CS3248	Design of Interactive Media
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or

NM3208	Designing Content for New Media
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* With approval from the department, students may take a module of equivalent level or higher from Programme Elective Group B in place of a module in Programme Essentials.

CM Programme Electives

Complete 24 MCs with the following conditions:

- i. At least 8 MCs from the Media & Internet Technology module group;
- ii. At least 8 MCs from the Content Creation & Mass Communications module group;

¹ CS3224 Architecture of Internet will be defunct in AY2006-7 and it can be replaced by any one module taken from the Media and Internet Technology Group.

² As IF3209/EL3271 will not be offered in the next few years, students may read any modules from the CM elective Group B (i.e. Content Creation & Mass Communications module group) to replace IF3209/EL3271.

- iii. At least 16 MCs are at level 4000 or above.

Programmes Elective Groups

- a. **Media & Internet Technology module group**³
CS3243 Foundation of Artificial Intelligence
CS3248 Design of Interactive Media
CS4213 Games Development
CS4241 Multimedia Information Systems
CS4243 Computer Vision and Pattern Recognition
CS4245 Multimedia E-Learning Environments
CS4247 Image Synthesis and Computer Animation
CS4248 Natural Language Processing
CS4249 Design of Advanced User Interfaces
CS5240 Theory and Practice of Multimedia
CS5246 Text Processing on the Web
Other relevant courses approved by the Department of Computer Science
- b. **Content Creation & Mass Communications module group**¹
NM2201 Intercultural Communications
NM2202 Governance and IT
NM2204 Economics of Information & Communication
NM2218 Critical Introduction to Gaming
SC2214 Mass Media and Culture
NM3201 Media and Globalization
NM3206 Knowledge Economies
NM3208 Designing Content for New Media
NM3215 Advertising Strategies
NM3216 Gaming Culture I
NM3218 Knowledge Management: Approaches n Critique
SC3213 Visual Ethnography
NM4201 Culture Industries
NM4202 Transnational Information Producers
NM4204 Ethics in the Information Age
NM4205 Digital Media Project Management
NM4206 Media & Communications Regulation
NM5202 New Media in Emerging Asian Economies
Other relevant courses approved by the Department of Computer Science

Science Related

- MA1505 Mathematics I
MA1101R Linear Algebra I
ST2131 Probability
Science module ⁴

(ii) **UNIVERSITY LEVEL REQUIREMENTS**

(iii) **UNRESTRICTED ELECTIVES**

³ Students may choose a module in this group if they have not already taken it as part of Programme Essential.

⁴ A Science module can be LSM1302 (Genes and Society), LSM1304 (Microbes, Environment and Man), PC1143 (Physics III), PC1144 (Physics IV), PC1221 (Fundamentals of Physics I), PC1222 (Fundamentals of Physics II), PC1432 (Physics IIE) or courses approved by the Department of Computer Science.

University Scholars Programme (Communications and Media)

Students in the University Scholars Programme who choose the Bachelor of Computing (Communications and Media) major will follow the Communications and Media curriculum, but with the following variations:

1. They will not be required to take the following:
 - (a) The University Level Requirements (28 MCs)
 - (b) One Science Module (4 MCs)
(These are replaced by appropriate First-Tier Scholars Modules.)
2. They will take UROP module (CS3208) in place of CS3242S (Hypermedia Technologies). CS3208 is an independent study module (ISM) and will be counted as one of the four Advanced Scholars Modules [4 equivalent MCs].
3. They will be required to complete 20 (instead of 24) modular credits under the "Programme Elective" subject to the same "Programme Elective" conditions [Namely, 4 MCs fewer].
4. Eight MCs (out of 48 MCs for USP) will count towards "Unrestricted Electives".

Table 1: Summary of degree requirement for B.Comp. (Communications and Media)

Modules	MC	Subtotals
UNIVERSITY LEVEL REQUIREMENTS		28
PROGRAMME REQUIREMENTS		119
<i>Common Essentials</i>		
CS1101/S Programming Methodology	5	
CS1102 Data Structures and Algorithms	5	
CS1104 Computer Organisation	4	
CS2102 Database Systems	4	
CS2103 Software Engineering	4	
CS2105 Introduction to Computer Networks	4	
<i>Major Requirements</i>		
<i>Computing Related</i>		
CS1231 Discrete Structures	4	
CS3224 Architecture of Internet ⁵	4	
CS3240 Human-Computer Interaction	4	
CS3241 Computer Graphics	4	
CS3242S Hypermedia Technologies	5	
CS4101 Honours Project	12	
CS4102 Technical and Management Training	0	
<i>Communication and Media Related</i>		
20 MC from CM Related ⁶	20	
24 MC from CM Program Electives ⁷	24	
<i>Science Related</i>		
MA1505 Mathematics I	4	
MA1101R Linear Algebra I	4	
ST2131 Probability	4	
Science Module ⁸	4	
UNRESTRICTED ELECTIVES		13
Grand Total		160

⁵ CS3224 Architecture of Internet will be defunct in AY2006-7 and it can be replaced by any one module taken from the Media and Internet Technology Group.

⁶ The **CM required list** includes: CS3248 Design of Interactive Media, NM1101E New Media and Society, NM2101 Theories of Communications and New Media, and NM3208 Designing Content for New Media.

⁷ To satisfy the **CM program elective** requirement, students must complete 24MCs with the following conditions: (a) At least 8 MCs from the Media and Internet Technology module group; (b) At least 8 MCs from the Content Creation and Mass Communication module group; (c) At least 16 MCs are at level 4000 or above.

⁸ A Science module can be LSM1302 (Genes and Society), LSM1304 (Microbes, Environment and Man), PC1143 (Physics III), PC1144 (Physics IV), PC1221 (Fundamentals of Physics I), PC1222 (Fundamentals of Physics II), PC1432 (Physics IIE) or courses approved by the Department of Computer Science.

Bachelor of Computing in Computational Biology

Overview

The main objective of this programme is to provide a multidisciplinary education to produce graduates who would be equally at ease with algorithm design and mathematical and statistical analysis as they would be with biochemistry, biology/genetics, and wet-lab know-how. Besides an opportunity to pursue a career in IT, graduates from the programme will also be equipped for a career in the fast-paced pharmaceutical, biomedical or biotechnology industries. This will help meet the demand of the local market for talents with such skill sets. Moreover, the breadth of instructions will pave the way for good students to pursue graduate studies in Bioinformatics.

Programme Structure

The programme is structured such that both Computing and Faculty of Science students share a common core multidisciplinary curriculum (lower division) in their first two years of study.

The **lower division** embraces a fundamental body of knowledge in which a computational biologist should be proficient. This body of knowledge consists of the following:

- Discrete mathematics and combinatorics, i.e., logic, sets, graphs, counting techniques, etc.;
- Probability and statistics, i.e., sample spaces, random variables, conditioning, distributions, design of experiments, significance tests, statistical inference, etc.;
- Algorithm design and proficiency in some current programming language, i.e., combinatorial algorithms, algorithmic paradigms, analysis and design, working knowledge of current languages (for example, C, C++, Java) and experience in writing actual nontrivial code;
- Organic chemistry and biochemistry;
- Biology and genetics, including a moderate amount of wet-lab experience.

The **upper division** specialised track trains students in algorithmic design to facilitate the design of computationally efficient software and tools in both centralised and networking environments. Students in this track will pick up skills in software engineering, networking and advanced techniques in algorithmic design. Students may also take modules from the Computational Biology elective list.

Degree Requirements

The Computer Science programme degree requires at least 160 modular credits. Modules are classified as follows (note that every module can only be counted towards satisfying exactly one requirement):

(i) ***PROGRAMME REQUIREMENTS (Total of 110 MCs)***

a. Faculty Requirements

CS1104	Computer Organisation
CS2103	Software Engineering
CS2105	Introduction Computer Networks
CS2301	Business and Technical Communication

b. Major Requirements

CS1101 or CS1101S	Programming Methodology
CS1102 or CS1102S	Data Structures and Algorithms
CS1231	Discrete Structures
CS2102	Database Systems
CS2220	Introduction to Computational Biology
CS3230	Design & Analysis of Algorithms
CS4220	Computational Analysis of Biological Data
LSM1102	Molecular Genetics

LSM2101	Metabolism and Regulation
LSM2102	Molecular Biology
Either	
LSM2201	Experimental Biochemistry
or	
LSM2202	Experimental Molecular and Cell Biology
LSM3231	Protein Structure and Function
LSM4241	Functional Genomics
ST2131	Probability
ST2132	Mathematical Statistics
MA1102R	Calculus
MA3259	Mathematical Methods in Genomics

Minimum of 12 MCs from the following list:

CS3103	Computer Networks and Protocols ⁹
CS3240	Human-Computer Interaction
CS3241	Computer Graphics
CS3243	Foundations Of Artificial Intelligence
CS3244	Machine Learning & Neural Networks
CS3225	Post-Genome Informatics

CS4101 Honours Project¹⁰

Complete eight MCs by taking modules from Computational Biology (CB) Elective list

Computational Biology (CB) Electives

CS4221	Database Design
CS4231	Parallel and Distributed Algorithms
CS4234	Combinatorial & Graph Algorithms
CS4235	Computational Geometry
CS4237	Systems Modeling and Simulation
CS4242	Uncertainty Modeling In Artificial Intelligence
CS4244	Knowledge-Based Systems
CS4248	Natural Language Processing

(ii) **UNIVERSITY LEVEL REQUIREMENTS**

Students are required to read:

CM1121 Basic Organic Chemistry
 LSM1101 Biochemistry and Biomolecules
 MA1101R Linear Algebra
 PC1432 Physics IIE
 towards Breadth.

(iii) **UNRESTRICTED ELECTIVES**

⁹ Students who take CS3103 Computer Networks and Protocols starting AY2006-7 must also take CS3103L (Computer Networks Laboratory).

¹⁰ The theme of the project must be on Computational Biology.

Table 2: Summary of degree requirements for B.Comp. (Computational Biology)

Modules	Modular Credits	Subtotals
UNIVERSITY LEVEL REQUIREMENTS		28
2 x GEMs	8	
1 x Singapore Studies	4	
4 X Breadth - CM1121 Basic Organic Chemistry - LSM1101 Biochemistry and Biomolecules - MA1101R Linear Algebra - PC1432 Physics IIE	16	
PROGRAMME REQUIREMENTS		
Faculty Requirements		16
CS1104 Computer Organisation	4	
CS2103 Software Engineering	4	
CS2105 Introduction to Computer Networks I	4	
CS2301 Business and Technical Communications	4	
Major Requirements		
Level 1000/2000 Essential		64
CS1101/S Programming Methodology	5	
CS1102/S Data Structures and Algorithms	5	
CS1231 Discrete Structures	4	
CS2102 Database Systems	4	
CS2220 Introduction to Computational Biology	4	
LSM1102 Molecular Genetics	4	
LSM2101 Metabolism and Regulation	4	
LSM2102 Molecular Biology	4	
LSM2201 Experimental Biochemistry or LSM2202 Experimental Molecular and Cell Biology	6	
MA1102R Calculus	4	
ST2131 Probability	4	
ST2132 Mathematical Statistics	4	
Level 3000 Essential		
CS3230 Design & Analysis of Algorithms	4	
LSM3231 Protein Structure and Function	4	
MA3259 Mathematical Methods in Genomics	4	
Level 3000 Electives ; Choose any <u>three</u> from the following: CS3103 Computer Networks and Protocols ¹¹ CS3240 Human-Computer Interaction CS3241 Computer Graphics CS3243 Foundations Of Artificial Intelligence CS3244 Machine Learning & Neural Networks CS3225 Post-Genome Informatics		12
Level 4000 Essential		28
CS4220 Computational Analysis of Biological Data	4	

¹¹ Students who take CS3103 Computer Networks and Protocols starting AY2006-7 must also take CS3103L (Computer Networks Laboratory).

LSM4241 Functional Genomics	4	
CS4101 Honours Project Sufficient number of modules from CB Elective course list	20	
UNRESTRICTED ELECTIVES		12
	Grand Total	160

Bachelor of Computing in Computer Science

Overview

The 4-year **Computer Science programme** aims to equip graduates with a strong and broad technical knowledge in computer science and technology. It also provides the flexibility for students to specialise in various fields of computer science. The programme emphasises the four pillars in computer science, viz. *programming languages, computer systems, modelling and algorithms, and human-computer interaction.*

The programme is structured around the U.S. Association of Computing Machinery and the IEEE Computer Society's *Computing Curriculum 2001* recommendations. Students pursuing a degree in B.Comp. (Computer Science) will also pick up knowledge in science, including life science, mathematics, and physics. It inculcates among them an awareness of information technology application across multiple disciplines. It also provides the opportunity for students to receive interdisciplinary education.

Graduates of B.Comp. in Computer Science can position themselves in a large number of exciting fields of works, including digital animation, knowledge engineering, software architecture, web design, digital media, and security consultancy.

Degree Requirements

The Computer Science programme degree requirement is at least 160 modular credits. Modules are classified as follows (note that every module can only be counted towards satisfying exactly one requirement):

(ii) **PROGRAMME REQUIREMENTS**

Common Essentials

CS1101 or CS1101S	Programming Methodology
CS1102	Data Structures and Algorithms
CS1104	Computer Organisation
CS2102S	Database Systems
CS2103	Software Engineering
CS2105	Introduction to Computer Networks

Major Requirements

Computing Related

CS1231	Discrete Structures
CS2106	Operating Systems
CS3212	Programming Languages
CS3215	Software Engineering Project
CS3230	Design and Analysis of Algorithms
CS4101	Honours Project
CS4102	Technical and Management Training

Minimum of 8 modular credits from the following list of 5 modules:

CS3211	Parallel and Concurrent Programming
CS3220	Computer Architectures
CS3231	Theory of Computation
CS3234	Logic and Formal Systems
CS3243	Foundations of Artificial Intelligence

Complete 16 modular credits from 4000/5000-level modules in elective areas A1 to A4.

Science Related

MA1505 Mathematics I
MA1506 Mathematics or MA1101R Linear Algebra I
ST2131 Probability
A Life-Sciences Module¹²
A Physics Module¹³

Others

CS2301 Business and Technical Communication

(ii) **UNIVERSITY LEVEL REQUIREMENTS**

(iii) **UNRESTRICTED ELECTIVES**

University Scholars Programme (Computer Science)

Students in the University Scholars Programme who choose the Bachelor of Computing (Computer Science) major will take the four-year Computer Science programme, but with the following variations:

1. They will not be required to take the following:
 - (a) The University Level Requirements (28 MCs)
 - (b) One Physics Module (4 MCs)
 - (c) One Life-Sciences Module (4 MCs)(These are replaced by appropriate First-Tier Scholars Modules.)
2. They will take UROP modules (CS3208 and CS3209) in place of CS3215 (Software Engineering Project). CS3208 and CS3209 are independent study modules (ISMs) and they will also be counted as two of the four Advanced Scholars Modules [8 equivalent MCs].
3. Four MCs (out of 48 MCs for USP) will count towards "Unrestricted Electives".

¹² A Life-Science module can be LSM1302 (Genes and Society), LSM1304 (Microbes, Environment and Man), or courses approved by the Department of Computer Science.

¹³ A Physics module can be PC1143 (Physics III), PC1144 (Physics IV), PC1221 (Fundamentals of Physics I), PC1222 (Fundamentals of Physics II), PC1432 (Physics IIE) or courses approved by the Department of Computer Science.

Table 2: Summary of degree requirement for B.Comp. (Computer Science)

Modules	Modular Credits	Subtotals
UNIVERSITY LEVEL REQUIREMENTS		28
PROGRAMME REQUIREMENTS		110
<i>Common Essentials</i>		
CS1101/S Programming Methodology	5	
CS1102 Data Structures and Algorithms	5	
CS1104 Computer Organisation	4	
CS2102S Database Systems	5	
CS2103 Software Engineering	4	
CS2105 Introduction to Computer Networks	4	
<i>Major Requirements</i>		
<i>Computing Related</i>		
CS1231 Discrete Structures	4	
CS2106 Operating Systems	4	
CS3212 Programming Languages	4	
CS3215 Software Engineering Project	8	
CS3230 Design and Analysis of Algorithms	4	
8 MCs from CS Recommended Course list ¹⁴	8	
16 MCs from 4000/5000-level modules in A1 to A4	16	
CS4101 Honours Project	12	
CS4102 Technical and Management Training	0	
<i>Science Related</i>		
MA1505 Mathematics I	4	
MA1506 Mathematics II or MA1101R Linear Algebra I	4	
ST2131 Probability	4	
Life Science Module ¹⁵	4	
Physics Module ¹⁶	3	
<i>Others</i>		
CS2301 Business and Technical Communication	4	
UNRESTRICTED ELECTIVES		22
Grand Total		160

¹⁴ The **CS Recommended** Course list includes: CS3211 (Parallel and Concurrent Programming), CS3220 (Computer Architectures), CS3231 (Theory of Computation), CS3234 (Logic and Formal Systems), CS3243 (Foundations of Artificial Intelligence), and other relevant courses approved by the Department of Computer Science.

¹⁵ A Life-Science module can be LSM1302 (Genes and Society), LSM1304 (Microbes, Environment and Man), or courses approved by the Department of Computer Science.

¹⁶ A Physics module can be PC1143 (Physics III), PC1144 (Physics IV), PC1221 (Fundamentals of Physics I), PC1222 (Fundamentals of Physics II), PC1432 (Physics IIE) or courses approved by the Department of Computer Science.

Bachelor of Computing

Overview

The 3-year Bachelor of Computing programme is designed to provide a sound scientific education, targeted at the needs of local and regional IT users and vendors. The programme combines *theoretical training* with *practical technology experience*. Students will develop professional competence in programming, abstraction, and conceptual skills of computing.

Graduates will meet national IT manpower needs in major job segments such as programmer analyst, systems analyst, systems programmer, system integrators and end user support analyst. They will be able to contribute immediately to the development needs of the local and regional economies.

Students in this programme are required to choose a focus of study. In order to meet diverging demand in IT practice, the 3-year Bachelor of Computing Programme consists of two foci of studies:

The **Technology focus** aims to equip students with strong technology know-how so that they can stride forward alongside the advancement of computing technology.

The **Business focus** aims to equip students with sound business knowledge in relation to information technology, including the operation of E-Commerce.

Degree Requirements

The 3-year Bachelor of Computing programme degree requirement is at least 120 modular credits. Modules are classified as follows (note that every module can only be counted towards satisfying exactly one requirement):

(i) **PROGRAMME REQUIREMENTS**

Common Essentials

CS1101 or CS1101S	Programming Methodology
CS1102	Data Structures and Algorithms
CS1104	Computer Organisation
CS2102	Database Systems
CS2103	Software Engineering
CS2105	Introduction to Computer Networks

Major Requirements

**Technology Focus
Computing Related**

CS1231	Discrete Structures
Either	
CS2104	Programming Language Concepts
or	
CS3212	Programming Languages
CS2106	Operating Systems
CS3214	Information Systems Development Project

Complete at least 12 modular credits from Technology Requirement by taking elective areas A1 to A8, with at least two modules chosen from the following modules offered by School of Computing:

Modules in elective area A8
Modules on Computer Security
Modules on Human-Computer Interaction
Modules on E-Commerce
Modules on Computer Networks

Science Related

MA1505 Mathematics I
MA1101R Linear Algebra I or
MA1506 Mathematics II
ST2131 Probability
A Life-Sciences Module¹⁷

Others

CS2301 Business and Technical Communication

Business Focus

Computing Related

CS1105 Computing and Society
CS1231 Discrete Structures
CS2250 Fundamentals of Information Systems
CS3214 Information Systems Development Project
CS3265 Economics of E-Business
CS3266 E-Commerce Technologies
CS2301 Business and Technical Communication

Complete at least 12 modular credits from Business Requirement by taking elective areas A1 to A8, with at least two modules chosen from the following modules offered by School of Computing:

Modules in elective area A6

CS3251 Technology Strategy and Management
CS3253 Management of Information Systems

Economics Related

EC1301 Principles of Economics

Science Related

ST2334 Probability and Statistics

(ii) ***UNIVERSITY LEVEL REQUIREMENTS***

(iii) ***UNRESTRICTED ELECTIVES***

¹⁷ A Life-Science module can be LSM1302 (Genes and Society), LSM1304 (Microbes, Environment and Man), or courses approved by the Department of Computer Science.

Table 4: Summary of degree requirement for B.Comp. with Technology Focus

Modules	Modular Credits	Subtotals
UNIVERSITY LEVEL REQUIREMENTS		20
PROGRAMME REQUIREMENTS		78
Common Essentials		
CS1101/S Programming Methodology	5	
CS1102 Data Structures and Algorithms	5	
CS1104 Computer Organisation	4	
CS2102 Database Systems	4	
CS2103 Software Engineering	4	
CS2105 Introduction to Computer Networks	4	
Major Requirements		
Computing Related		
CS1231 Discrete Structures	4	
CS2104 Programming Language Concepts or CS3212 Programming Languages	4	
CS2106 Operating Systems	4	
CS3214 Information Systems Development Project	8	
12 MCs meeting Technology requirement ¹⁸	12	
Science Related		
MA1505C Mathematics I	4	
MA1101R Linear Algebra I or MA1506 Mathematics II	4	
ST2131 Probability	4	
Life Science Module ¹⁹	4	
Others		
CS2301 Business and Technical Communication	4	
UNRESTRICTED ELECTIVES		22
Grand Total		120

¹⁸ To satisfy the **Technology** requirement, students must make up 12 MCs by taking courses from elective areas A1 to A8, with at least two modules chosen from the following categories of modules offered by School of Computing: Modules from elective area A8, computer security, human-computer interaction, e-commerce, computer networks.

¹⁹ A Life-Science module can be LSM1302 (Genes and Society), LSM1304 (Microbes, Environment and Man), or courses approved by the Department of Computer Science

Table 5: Summary of degree requirement for B.Comp. with Business Focus

Modules	Modular Credits	Subtotals
UNIVERSITY LEVEL REQUIREMENTS		20
PROGRAMME REQUIREMENTS		79
<i>Common Essentials</i>		
CS1101/S Programming Methodology	5	
CS1102 Data Structures and Algorithms	5	
CS1104 Computer Organisation	4	
CS2102 Database Systems	4	
CS2103 Software Engineering	4	
CS2105 Introduction to Computer Networks	4	
<i>Major Requirements</i>		
<i>Computing Related</i>		
CS1105 Computing and Society	4	
CS1231 Discrete Structures	4	
CS2250 Fundamentals of Information Systems	4	
CS3214 Information Systems Development Project	8	
CS3265 Economics of E-Business	4	
CS3266 E-Commerce Technologies	5	
12 MCs meeting Business requirement ²⁰	12	
<i>Science Related</i>		
ST2334 Probability and Statistics	4	
<i>Economics Related</i>		
EC1301 Principles of Economics	4	
<i>Others</i>		
CS2301 Business and Technical Communication	4	
UNRESTRICTED ELECTIVES		21
Grand Total		120

²⁰ To satisfy the **Business** requirement, students must make up 12 modular credits by taking courses from elective areas A1 to A8, with at least two modules chosen from the following modules offered by School of Computing: Modules from elective area A6, CS3251 (Technology Strategy and Management) and CS3253 (Management of Information Systems).