

3.2.6 Bachelor of Computing in Communications and Media

The four-year **Bachelor of Computing in Communications and Media** aims to train students in the technological underpinnings of interactive and digital media technologies as well as the skills of media design and content creation tempered with an understanding of the social sciences. Therefore, the programme has been designed to facilitate the integration of 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:

- Foundations of IT: This refers to the basics of computing required to understand, design, and extend media systems.
- Information encoding, customization, and repurposing: Information encoding, such as XML, is required for information to be mass communicated on the Internet and world-wide web (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 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 various interactive digital media (text, image, graphics, audio and video) and the various types of processing, such as data-rate transformation, summarisation, etc.
- Entertainment technology: This refers to technologies required to develop interactive games and virtual reality systems.

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 end devices on 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 MCs. 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)

Common Essentials

CS1101 or CS1101S	Programming Methodology
CS1102 or CS1102S	Data Structures and Algorithms
CS1104	Computer Organisation
CS2102	Database Systems
CS2105	Introduction to Computer Networks

Major Requirements

Computing Related

CS1231	Discrete Structures
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CS2103	Software Engineering
CS3240	Human-Computer Interaction
CS3248	Design of Interactive Media
CS3241	Computer Graphics
CS3342	Interactive Media Development Project ¹

Either

CS4101	Honours project
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or

complete 12 MCs from the two CM Programme Elective Groups, with modules at level-4000 or above

Communications and Media Related

NM2101	Theories of Communications and New Media
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Take at least 28 MCs from the two CM Programme Elective Groups, with at least 16 MCs at level-4000 or above.

Programme Elective Groups

a. Interactive Media Technology Group

CS2106	Operating Systems
CS3103	Computer Networks and Protocols ²
CS3103L	Computer Networks Laboratory
CS3242/S	Hypermedia Technologies
CS3243	Foundations of Artificial Intelligence
CS3248	Design of Interactive Media
CS4213	Game Development
CS4240	Virtual Reality and 3D Interaction
CS4241	Multimedia Information Systems
CS4243	Computer Vision and Pattern Recognition
CS4246	Text Processing on the Web
CS4247	Image Synthesis and Computer Animation
CS4248	Natural Language Processing
CS3342	Interactive Media Development Project
CS4343	Game Development Project
CS4344	Networked and Mobile Gaming
Other relevant modules approved by the Department of Computer Science	

b. Content Creation and Mass Communications Group

NM2204	Economics of Information and Communication
NM2208	Principles of Visual Communication
NM2218	Critical Introduction to Gaming
NM3201	Media and Globalisation
NM3208	Designing Content for New Media
NM3218	Knowledge Management: Approaches & Critique
NM3216	Gaming Culture I
SC3213	Ethnography Analysis of Visual Media
NM4201	Culture Industries
NM4202	Transnational Information Producers
NM4204	Ethics in the Information Age
NM4205	Digital Media Project Management
NM4206	Media and Communications Regulation
NM5203	Infocom Technology Policy

¹ Student can read CS4343 (Game Development Project) to replace CS3342 (Interactive Media Development Project).

² Student who take CS3103 (Computer Networks and Protocols) must also take CS3103L(Computer Networks Laboratory).

NM5204 Computer-Mediated Environments
CS4245 Multimedia E-Learning Environments
CS4249 Design of Advanced User Interfaces
Other relevant modules approved by the Department of Computer Science

Science Related

MA1505 Mathematics I
MA1101R Linear Algebra
ST2131 Probability
Science module³.

(ii) **UNIVERSITY LEVEL REQUIREMENTS**

As specified in Section 3.2.1.

(iii) **UNRESTRICTED ELECTIVES**

As specified in Section 3.2.1.

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 modules CS3208 and CS3209 in place of CS4342 or CS4343. CS3208 and CS3209 are independent study modules (ISMs) and will be counted as two of the four Advanced Scholars Modules [8 MCs].
3. They will take modules from CM Programme Elective Groups to fulfil 106 MCs (instead of 110 MCs) of the major programme requirement.

³ 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.

Table 6: Summary of degree requirement for Bachelor of Computing in Communications and Media⁴

Modules	MCs	Subtotals
UNIVERSITY LEVEL REQUIREMENTS		28
PROGRAMME REQUIREMENTS		110
<i>Common Essentials</i>		
CS1101/S Programming Methodology	5	
CS1102/S Data Structures and Algorithms	5	
CS1104 Computer Organisation	4	
CS2102 Database Systems	4	
CS2105 Introduction to Computer Networks	4	
<i>Major Requirements</i>		
<i>Computing Related</i>		
CS1231 Discrete Structures	4	
CS2103 Software Engineering	4	
CS3240 Human-Computer Interaction	4	
CS3241 Computer Graphics	4	
CS3248 Design of Interactive Media	4	
CS3342 Interactive Media Development Project ⁵	8	
Either: CS4101 Honours Project Or Complete 12 MCs from the two CM Programme Elective Groups, with modules at level-4000 or above	12	
<i>Communications and Media Related</i>		
NM2101 Theories of Communications and New Media	4	
<i>Modules from CM Programme Elective Groups at level-4000 or above</i>	28	
<i>Science Related</i>		
MA1505 Mathematics I	4	
MA1101R Linear Algebra I	4	
ST2131 Probability	4	
Science Module ⁶	4	
UNRESTRICTED ELECTIVES		22
Grand Total		160

⁴ There should not be any double-counting of a module's MC towards different parts of the programme.

⁵ Student can read CS4343 (Game Development Project) to replace CS3342 (Interactive Media Development Project).

⁶ 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.