

2.1.6 Full-time programmes

2.1.6.1 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	Data Structures and Algorithms
CS1104	Computer Organization
CS2102	Database Systems
CS2103	Software Engineering
CS2105	Computer Networks I

Programme Essentials

Computing Related

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

Communications and Media (CM) Related ⁺

IF1101E	Information Revolution & Society
IF2101	Media Communication

Choose either

IF2208	Principles of Visual Communication
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or

IF2210	Aesthetics of New Media
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IF3209/EL3271	Hypertext and the Electronic Author
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Choose either

CS3248	Design of Interactive Media
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or

IF3208	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;
- iii. At least 16 MCs are at level 4000 or above.

Programmes Elective Groups

a. Media & Internet Technology module group¹

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

¹ Students may choose a module in this group if they have not already taken it as part of Programme Essential.

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 group¹

IF2201 Culture & Communications
 IF2202 Governance and IT
 IF2204 Economics of Information & Communication
 IF2207 Internet Studies: Cyber Communications
 IF2214 Mass Media & Culture
 IF3201 Media, Globalization & IT
 IF3206 Knowledge Economies
 IF3208 Designing Content for New Media
 IF3213/
 SC3213 Visual Ethnography
 IF4201 Culture Industries
 IF4202 Transnational Info Producers
 IF4204 Ethics in the Information Age
 IF4205 Digital Media Project Management
 IF4206 Media & Communications Regulation
 IF5202 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 ²

(ii) **UNIVERSITY LEVEL REQUIREMENTS**

As specified in Section 2.1.5.

(iii) **UNRESTRICTED ELECTIVES**

As specified in Section 2.1.5.

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].

² 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), or courses approved by the Department of Computer Science.

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" listed in Section 2.1.5.

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 Computer Networks I	4	
<i>Major Requirements</i>		
<i>Computing Related</i>		
CS1231 Discrete Structures	4	
CS3224 Architecture of Internet	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 ³	20	
24 MC from CM Program Electives ⁴	24	
<i>Science Related</i>		
MA1505 Mathematics I	4	
MA1101R Linear Algebra I	4	
ST2131 Probability	4	
Science Module ⁵	4	
UNRESTRICTED ELECTIVES		13
Grand Total		160

³ The **CM required list** includes: IF1101E Information, Revolution and Society, IF2101 Media Communication, and IF3209 Hypertext and the Electronic Author.

⁴ 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.

⁵ 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), or courses approved by the Department of Computer Science.