

35.	Formal Methods and Computer Algorithms	CIT-645	Common core course	
36.	Machine Learning and Data mining	CIT-646	Track core course for Informatics program	
37.	Mathematical Methods in Visual Computing	CIT-647	Pool	
38.	Selected Topics in CIT	CIT-690		
39.	Independent Studies in CIT	CIT-699		

#### IV. MOT/Business Courses

For a list of courses, please check the Management of Technology (MOT) and Executive MBA programs

#### V. Thesis/Project

Course Name	Course Number
Project	CIT-710
Thesis	CIT-700

## Master of Communications and Information Technology - Informatics (MCIT-INF)



#### PROGRAM DESCRIPTION

The MCIT-INF program was created aiming to produce elite technical professionals with solid managerial, leadership, and entrepreneurship skills, prepared for fulfilling the needs of the CIT industry. The program emphasizes the application of research-based knowledge in real world problems. Students in the MCIT-INF program are mentored and work under direct supervision of faculty members with strong track-record in research and scientific publishing, as well as consistent engagement in major research projects of national and/or international nature. Examples of current projects include image analysis for detecting liver fibrosis, smart traffic systems, gene-sequencing of bladder and ovarian cancer.

#### Local/ International Partners

International partners include a group of world renowned institutions from well recognized universities in USA, Canada, Europe, and Asia.

#### WHO SHOULD APPLY

Fresh graduates with demonstrated potential to conduct cutting edge research in the area or the desire to broaden their knowledge in CIT, and technical staff of CIT companies. Sectors benefiting from the program include companies, and organization developing or using communication and information technologies.

#### Program Outcomes

Graduates will have the vision and the knowledge to provide innovation and technical leadership in CIT. In addition, graduates will have the skills to become world-class researchers who can make fundamental contributions in the field of CIT.

#### Faculty

The program faculty consists of some of the best recognized educators in the world from NU and partner universities.

## Curriculum

### Program Structure

A student enrolled in the CIT-Informatics (INF) program would be targeting one of two degrees, either a Master's of Science in CIT (MSCIT-INF) or a Master's of CIT (MCIT-INF). The study structure for students pursuing a Master's degree in the INF track is as follows:

Component	MSCIT	MCIT
CIT Common Core Courses	3-6 Credits	3-6 Credits
INF Track Core Courses	6 Credits	6 Credits
Elective Courses	12-15 Credits	18-21 Credits
MOT/ Business Courses	3 Credits	3 Credits
Thesis / Project	9 Credits	3 Credits
	<b>36 Credits</b>	<b>36 Credits</b>

\* Each course is 3 credits

Students enrolled in the INF track take 6 credits as common core and 12 credits as MSCIT elective courses (18 credits in case of MCIT).

"INF Track Core Courses" serve to identify the students' specialization.

All MSCIT and MCIT Students must complete 3 credits of Management of Technology or Business courses, as approved by the program director.

MSCIT students must successfully complete and defend a Master's thesis. MCIT students must complete 6 cr hrs of course work and submit and present a project document (3 cr hrs) in lieu of thesis.

### I. CIT Common Core Courses

The following courses are the core of CIT programs at large. Students in the Informatics (INF) track choose two courses.

Course Name	Course Number
Systems Engineering	CIT-601
Fundamentals of Networking	CIT-606
Formal Methods and Computer Algorithms	CIT-645

### II. Informatics Track Core Courses\*

Course Name	Course Number
Image Processing and Computer Graphics	CIT-643
Scientific Computing	CIT-644
Machine Learning and Data Mining	CIT-646

\* Students choose two out of three courses.

### III. CIT Elective Course:

No	Course Name	Course No.	Curricular Status	Pre-Requisite
1.	Systems Engineering	CIT-601	Common core course	
2.	Software Engineering	CIT-602	Pool	
3.	Computer Architecture	CIT-603	Pool	
4.	Stochastic Processes	CIT-604	Track Core course for WT program	
5.	Information Theory	CIT-605	Track Core course for WT program	
6.	Fundamental of Networking	CIT-606	Common core course	
7.	Operations Research	CIT-607	Pool	
8.	Introduction to Convex Optimization Theory	CIT-608	Pool	
9.	Network Architecture	CIT-609		
10.	Software Architecture	CIT-611	Pool	
11.	Software Project Management	CIT-612	Track Core course for SWE program	
12.	Software Testing & Verification	CIT-613	Pool	
13.	Network Programming & Distributed Object Systems	CIT-614	Pool	CIT-606
14.	Software Development Studio I	CIT-615	Pool	
15.	Software Development Studio II	CIT-616	Pool	CIT-615
16.	Advanced Software Engineering	CIT-617	Track Core course for SWE program	
17.	Introduction to Information Security & Cryptography	CIT-620	Track Core course for IS program	
18.	Crypto-protocols & Network Security	CCIT-621	Track Core course for IS program	CIT-620
19.	Operating Systems & Applications Security	CIT-622	Pool	CIT-620
20.	Security in Wireless Ad Hoc Networks	CIT-623	Pool	CIT-620
21.	Security Evaluation Methodologies	CIT-624	Pool	CIT-620
22.	Security Incident Handling	CIT-625	Pool	
23.	Information Security Ethics, Policy and Legal Issues	CIT-626	Pool	
24.	Risk Management	CIT-627	Pool	CIT-620
25.	Information Security Governance	CIT-628	Pool	CIT-627
26.	Design of Communication Systems	CIT-630	Pool	CIT-604,CIT-605
27.	Antennas	CIT-631	Pool	
28.	Wireless Communications	CIT-633	Pool	CIT-630
29.	Advanced Coding & Signal processing	CIT-634	Pool	CIT-604,CIT-605
30.	Design and Implementation of Wireless Networks	CIT-635	Pool	CIT-633
31.	Detection and Estimation	CIT-637	Pool	
32.	Advanced Networks	CIT-638	Pool	CIT-606
33.	Image processing and 3D Computer Graphics	CIT-643	Track core course for Informatics program	
34.	Scientific Computing	CIT-644	Track core course for Informatics program	