INFORMATION AND COMMUNICATION TECHNOLOGY - BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY

The Bachelor of Information and Communication Technology (ICT) degree focuses on designing, implementing, and managing various information systems. The curriculum includes the fundamentals of operating systems, system integration, computer networking, software development, security, cloud technologies, and project management practices. Advanced Information Technology topics are also included and differently emphasized according to the selected degree concentration:

- **No Concentration (this option)** - provides the ability to choose from various advanced courses on Cyber Defense, Network Technologies, and Software Development topics.
- **Cyber Defense Concentration** - focused on cyber security and defense, including ethical hacking and digital forensics;
- **Network Technologies Concentration** - focused on computer network design, configuration, and security;
- **Software Development Concentration** - focused on the design, application, deployment, and maintenance of software;

The ICT program is a distance education program and does not require on-campus visits. Students who are successful in distance education programs typically are self-motivated, do not rely heavily on face-to-face instruction, work independently, and can remain on schedule. Students must have familiarity with and access to:

- a high-speed Internet connection,
- a sound card, 12G of RAM minimum,
- a microphone/Webcam,
- Microsoft Operating System 8.1 or newer and Office ®.

The ICT program is accredited under NMSU's umbrella accreditation by the Higher Learning Commission (https://accreditation.nmsu.edu/) of the North Central Association of Colleges and Schools. Students must complete all university degree requirements, including General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 120 credits with 48 credits in courses numbered 300 or above. Requirements may be met with transfer credits from any previous program or institution.

Pathway: 4-year Bachelor's Degree

This pathway is designed with the traditional student in mind. Students have the flexibility to pursue the degree as a main campus student, or they may choose to complete the degree online.

Prefix	Title	Credits
General Education [1]		
Area I: Communications [1]		*10*
English Composition - Level 1		
English Composition - Level 2		
Oral Communications		
Area II: Mathematics		*3 - 4*
MATH 1220G	College Algebra (Equivalent or Higher) [1]	
Area III/IV: Laboratory Sciences and Social/Behavioral Sciences [1]		*10-11*
Area III: Laboratory Science Course (4 credits)		
Area IV: Social/Behavioral Sciences Course (3 credits)		
Either an Area III: Laboratory Sciences of Area IV: Social/Behavioral Sciences Course (3-4 credits)		
Area V: Humanities [1]		*3*
Area VI: Creative and Fine Arts [1]		*3*
General Education Elective [1]		*3-4*
Viewing A Wider World [2]		**6**
Departmental/College Requirements		
Program-Specific Requirements		
ICT 141	IT Essentials I: A+ Certification Training Focused on the Hardware Exam	3
ICT 145	Network Essentials: N+ Certification Training	3
ICT 152	Java Programming	3
ICT 161	IT Essentials II: A+ Certification Training focused on the Software exam	3
ICT 220	Discrete Math and Its Relationship to Information Technology	3
ICT 267	Information Security+ Certification Preparation	3
ICT 280	Introduction to Web Development	3
ICT 320	Introduction to Internet Protocols	3
ICT 350V	Introduction to Personal Computer Security and Privacy [2]	3
ICT 355	Linux System Administration	3
ICT 360	Operating Systems for ICT	3
ICT 362	Software Technology II	3
ICT 364	Windows Enterprise Administration	3
ICT 377	Computer Networking I	3
ICT 435	Senior Project	3
ICT 450	Ethical Hacking	3
ICT 457	Information Security Principles	3
Technical Elective (Choose 4 courses from the following) [3]		*12*
E T 483	Mobile App Programming and Development	
ICT 339	Introduction to Digital Forensics and Incident Response	
ICT 372	Software Engineering and Design	
ICT 439	Advanced Digital Forensics and Incident Response	
ICT 458	Web Development and Database Applications	
ICT 460	Advanced Software Development Concepts	
ICT 463	Enterprise Linux Network Administration Tools	
ICT 467	Communication Network Security	
ICT 477	Computer Networking II	
ICT 487	Data Security	
Second Language: (not required)		
Electives, to bring the total credits to 120 [4]		**19-16**
Total Credits		**120**

[1] See the **General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext)** section of the catalog for a complete list of courses. The number of credits provided assumes MATH 1220G College Algebra placement or higher.

[2] The ICT 350V Introduction to Personal Computer Security and Privacy course is part of the required curriculum for the ICT degree. It does not count towards the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) Requirements (6 credits). Visit the catalog's Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section for a complete list of Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) Requirements. These courses will form part of the required 48 upper-level credit hours taken as part of the ICT program at NMSU.

[3] The **judicious selection of Technical Electives** may lead to an ICT concentration on Cyber Defense, Network Technologies, or Software Development without the need for additional credits. Concentrations are *optional* educational sequences that students may choose to focus on in IT-related areas. A Technical Electives pre-approved list is provided in this catalog.

[4] **Elective** credit may vary based on prerequisites, dual credit, AP credit, double majors, or minor coursework. The amount indicated in the requirements list is needed to bring the total to 120 credits and may appear in variable form based on the degree. However, students may need to complete more or less on a case-by-case basis, and students should discuss elective requirements with their academic advisor.

Pathway: 2+2 Bachelor's Completion Degree

Prefix	Title	Credits
General Education [1]		
Area I: Communications [1]		*10*
English Composition - Level 1		
English Composition - Level 2		
Oral Communications		
Area II: Mathematics		*3 - 4*
MATH 1220G	College Algebra (Equivalent or Higher) [1]	
Area III/IV: Laboratory Sciences and Social/Behavioral Sciences [1]		*10-11*
Area III: Laboratory Science Course (4 credits)		
Area IV: Social/Behavioral Sciences Course (3 credits)		
Either an Area III: Laboratory Sciences of Area IV: Social/Behavioral Sciences Course (3-4 credits)		
Area V: Humanities [1]		*3*
Area VI: Creative and Fine Arts [1]		*3*
General Education Elective [1]		*3-4*
Viewing A Wider World [2]		**6**
Departmental/College Requirements		
Subject-Matter Courses		*12*
Introduction to Computer Networking (such as ICT 145)		
Introduction to Information Technology (such as ICT 161)		
Introduction to Information Security (such as ICT 267)		
Introduction to Web Development (such as ICT 280)		
Required Courses		
ICT 141	IT Essentials I: A+ Certification Training Focused on the Hardware Exam	3
ICT 152	Java Programming	3
ICT 220	Discrete Math and Its Relationship to Information Technology	3
ICT 320	Introduction to Internet Protocols	3
ICT 350V	Introduction to Personal Computer Security and Privacy [2]	3
ICT 355	Linux System Administration	3
ICT 360	Operating Systems for ICT	3
ICT 362	Software Technology II	3
ICT 364	Windows Enterprise Administration	3
ICT 377	Computer Networking I	3
ICT 435	Senior Project	3
ICT 450	Ethical Hacking	3
ICT 457	Information Security Principles	3
Technical Elective (Choose 4 courses from the following) [3]		*12*
E T 483	Mobile App Programming and Development	
ICT 339	Introduction to Digital Forensics and Incident Response	
ICT 372	Software Engineering and Design	
ICT 439	Advanced Digital Forensics and Incident Response	
ICT 458	Web Development and Database Applications	
ICT 460	Advanced Software Development Concepts	
ICT 463	Enterprise Linux Network Administration Tools	
ICT 467	Communication Network Security	
ICT 477	Computer Networking II	
ICT 487	Data Security	
Second Language: (not required)		
Electives, to bring the total credits to 120 [4]		**19-16**
Total Credits		**120**

[1] See the **General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext)** section of the catalog for a complete list of courses. The number of credits provided assumes MATH 1220G College Algebra placement or higher.

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[4] **Elective** credit may vary based on prerequisites, dual credit, AP credit, double majors, or minor coursework. The amount indicated in the requirements list is needed to bring the total to 120 credits and may appear in variable form based on the degree. However, students may need to complete more or less on a case-by-case basis, and students should discuss elective requirements with their academic advisor.

Pathway: 4-Year Bachelor's Degree

A Suggested Plan of Study for Students

These roadmaps assume student placement in MATH 1220G College Algebra or higher. The contents and order of this roadmap may vary depending on initial student placement in mathematics and previous coursework. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from fall to spring and summer semester and may be subject to modification or change.

All Information and Communication Technology requirements must be completed with a C- or higher grade.

First Year		
Fall		**Credits**
ICT 141	IT Essentials I: A+ Certification Training Focused on the Hardware Exam	3
Elective Course [4]		3
General Education Area I [1]		4
General Education Area II (MATH 1220G or Higher) [1]		3-4
General Education IV [1]		3
	Credits	**16-17**
Spring		
ICT 145	Network Essentials: N+ Certification Training	3
ICT 161	IT Essentials II: A+ Certification Training focused on the Software exam	3
General Education Area I [1]		3
General Education Area III [1]		4
General Education Area V [1]		3
	Credits	**16**
Second Year		
Fall		
ICT 152	Java Programming	3
ICT 220	Discrete Math and Its Relationship to Information Technology	3
General Education Area I [1]		3
General Education Area VI [1]		3
Elective Course [4]		3
	Credits	**15**
Spring		
ICT 267	Information Security+ Certification Preparation	3
ICT 280	Introduction to Web Development	3
General Education Area III or IV [1]		3-4
General Education Elective [1]		3
Elective Course [4]		3
	Credits	**15-16**
Third Year		
Fall		
ICT 360	Operating Systems for ICT	3
ICT 377	Computer Networking I	3
Elective Course [4]		3
Elective Course [4]		3
Elective Course [4]		3
	Credits	**15**
Spring		
ICT 320	Introduction to Internet Protocols	3
ICT 350V	Introduction to Personal Computer Security and Privacy [2]	3
ICT 355	Linux System Administration	3
ICT 364	Windows Enterprise Administration	3
Technical Elective (from pre-approved list) [3]		3
	Credits	**15**
Fourth Year		
Fall		
ICT 362	Software Technology II	3
ICT 435	Senior Project	3
ICT 450	Ethical Hacking	3
Technical Elective (from pre-approved list) [3]		3
Technical Elective (from pre-approved list) [3]		3
	Credits	**15**
Spring		
ICT 457	Information Security Principles	3
Electives to bring total to 120 credits (if necessary) [4]		1-0
Technical Elective (from pre-approved list) [3]		3
Viewing a Wider World [2]		6
	Credits	**13-12**
	Total Credits	**120-121**

1. See the **General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext)** section of the catalog for a complete list of courses. The number of credits provided assumes MATH 1220G College Algebra placement or higher.
2. The ICT 350V Introduction to Personal Computer Security and Privacy course is part of the required curriculum for the ICT degree. It does not count towards the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) Requirements (6 credits). Visit the c (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext)atalog's Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section for a complete list of Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) Requirements. These courses will form part of the required 48 upper-level credit hours taken as part of the ICT program at NMSU.
3. The **judicious selection of Technical Electives** may lead to an ICT concentration on Cyber Defense, Network Technologies, or Software Development without the need for additional credits. Concentrations are *optional* educational sequences that students may choose to focus on in IT-related areas. A Technical Electives pre-approved list is provided in this catalog.
4. **Elective** credit may vary based on prerequisites, dual credit, AP credit, double majors, or minor coursework. The amount indicated in the requirements list is needed to bring the total to 120 credits and may appear in variable form based on the degree. However, students may need to complete more or less on a case-by-case basis, and students should discuss elective requirements with their academic advisor.

Pathway: 2+2 Bachelor's Degree

A Suggested Plan of Study for Students

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All Information and Communication Technology requirements must be completed with a C- or higher grade.

First Year		Credits
Elective Credits (include General Education credits) [1, 4]		30
	Credits	**30**
Second Year		
Elective Credits (include General Education credits) [1, 4]		33
	Credits	**33**
Third Year		
Fall		
ICT 141	IT Essentials I: A+ Certification Training Focused on the Hardware Exam	3
ICT 152	Java Programming	3
ICT 220	Discrete Math and Its Relationship to Information Technology	3
ICT 360	Operating Systems for ICT	3
ICT 377	Computer Networking I	3
	Credits	**15**
Spring		
ICT 320	Introduction to Internet Protocols	3
ICT 350V	Introduction to Personal Computer Security and Privacy [2]	3
ICT 355	Linux System Administration	3
ICT 364	Windows Enterprise Administration	3
Technical Elective (from pre-approved list) [3]		3
	Credits	**15**
Fourth Year		
Fall		
ICT 362	Software Technology II	3
ICT 435	Senior Project	3
ICT 450	Ethical Hacking	3
Technical Elective (from pre-approved list) [3]		6
	Credits	**15**
Spring		
ICT 457	Information Security Principles	3
Technical Elective (from pre-approved list) [3]		3
Viewing a Wider World [2]		6
	Credits	**12**
	Total Credits	**120**

1. See the **General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext)** section of the catalog for a complete list of courses. The number of credits provided assumes MATH 1220G College Algebra placement or higher.
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