

ITT Technical Institute
NT1110T
Computer Structure and Logic
Onsite Course

SYLLABUS

Credit hours: 4.5

Contact/Instructional hours: 67 (41 Theory Hours, 26 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

None.

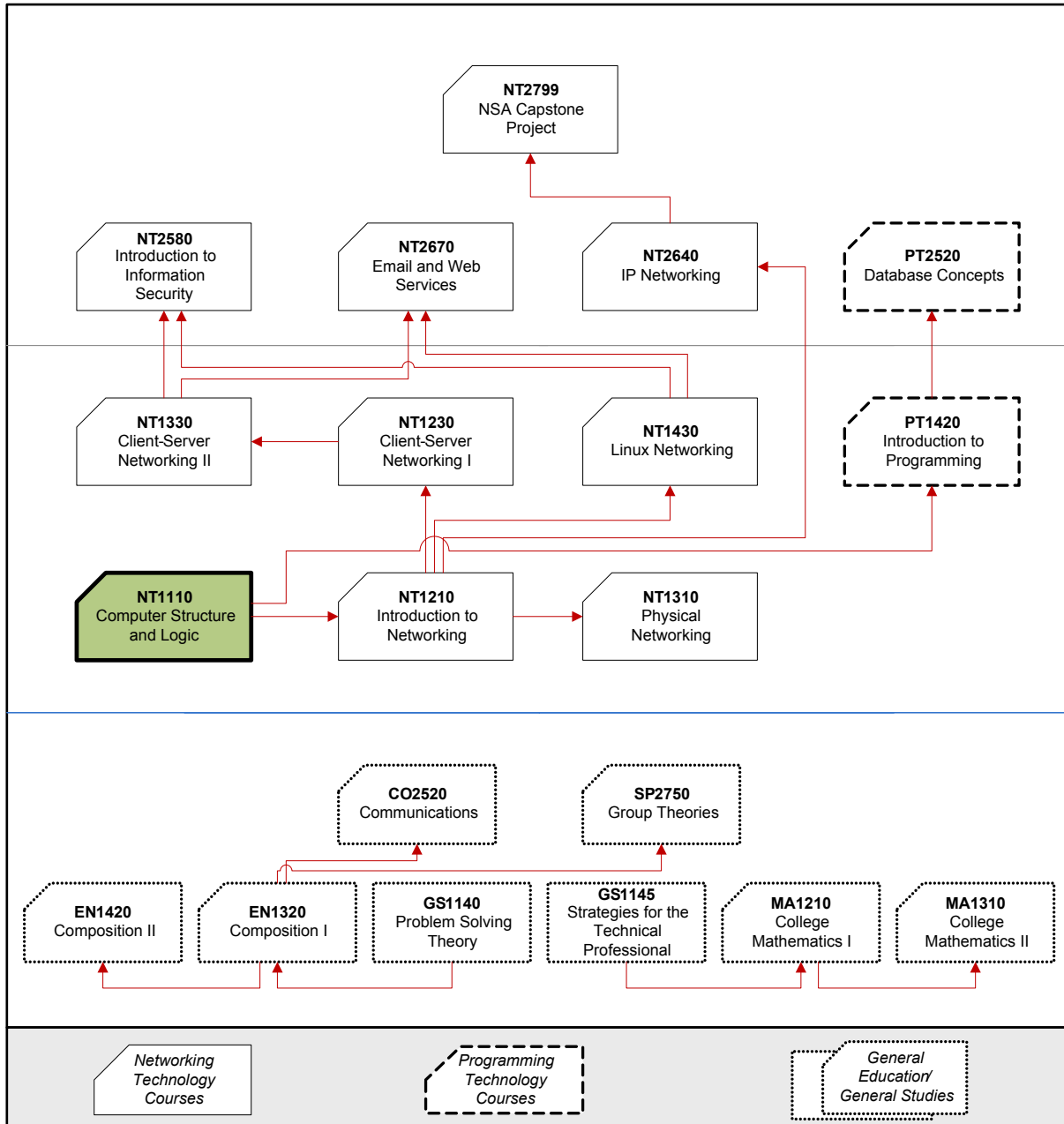
Course Description:

The organization of a computer is examined in a typical operating systems environment. Terminology and underlying principles related to major computer functions are discussed in the context of hardware and software environments.

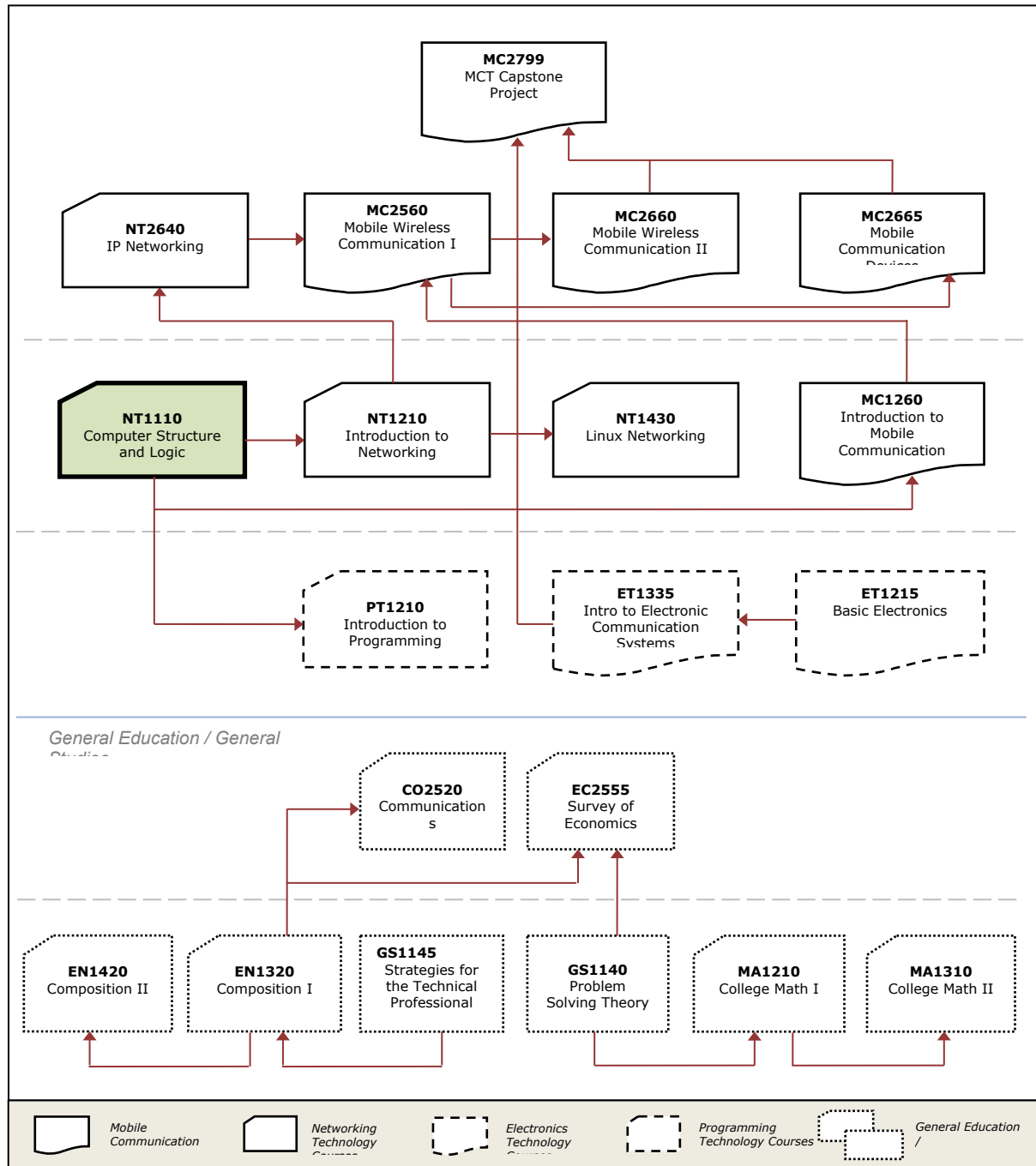
Where Does This Course Belong?

This course is required for the Network Systems Administration and Mobile Communications Technology programs. The following diagrams describe how this course fits in the each program:

Associate Program in Network Systems Administration



Associate Degree in Mobile Communications Technology:



Course Summary

Course Description

The organization of a computer is examined in a typical operating systems environment. Terminology and underlying principles related to major computer functions are discussed in the context of hardware and software environments.

Major Instructional Areas

1. Introduction to Computers
2. Computer Math and Measurement
3. I/O Ports and Devices
4. Motherboards and Busses
5. The CPU
6. Memory and Storage
7. Computer Operation
8. Operating Systems
9. Basic Security
10. Basic Networking
11. Troubleshooting

Course Objectives

1. Describe the components of a personal computer.
2. Convert numbers between the decimal, binary, and hexadecimal number systems.
3. Explain the types of input and output devices and their purposes.
4. Describe the operation of the motherboard and different types of busses located on it.
5. Explain the purposes, functions and characteristics of a central processing unit (CPU).
6. Identify various computer memories and storage devices based on their purposes and functions.
7. Explain BIOS and POST and derived processes.
8. Describe the purpose and functions of an operating system.
9. Explain file systems and differentiate FAT32 and NTFS file systems.

10. Apply basic computer security measures through authentication and access controls.
11. Explain the client-server and peer-to-peer network models.
12. Describe the six-step troubleshooting process.

Learning Materials and References

Required Resources

Textbook Package	New to this Course	Carried over from Previous Course(s)	Required for Subsequent Course(s)
Pearson Certification Team. (2011). <i>Computer Structure and Logic</i> . Indianapolis, Indiana: Prentice Hall.	■		
Antonakos, James L. (2011). <i>Lab manual to accompany Computer structure and logic</i> . Indianapolis, Indiana: Prentice Hall.	■		
Smith. E. H. (2011). <i>Windows Simulator DVD</i> . Indianapolis, Indiana: Prentice Hall.	■		
Smith, E. H. (2011). <i>Video Mentor DVD</i> . Indianapolis, Indiana: Prentice Hall.	■		

Technology Requirements

Minimum Requirements for Computer:

Pentium III (min.) or equivalent processor (Macintosh or Unix/LINUX-based machines are not supported)
 256 MB RAM (512 MB preferred)
 2 GB free space (5 GB preferred) on master drive
 DVD-ROM drive

Minimum Requirements for Software:

Windows XP (or higher)
 Microsoft Office 2003 (or higher)
 Internet Explorer 7.0 (or higher)
 Functional email address with attachment capabilities

Minimum Requirements for Internet Service (for online access to this course):

56Kbps modem (cable or DSL strongly preferred)

Recommended Resources

Books, Professional Journals

Mueller, Scott. (2010). *Upgrading and Repairing PCs*. Pearson Education, Inc.

Professional Associations

Association of Information Technology Professionals

IEEE Computer Society

ITT Tech Virtual Library (accessed via Student Portal)

School of Information Technology

- Tutorial Links
 - TechTutorials – Free Computer References
 - Computer Science Tutorials
- Recommended Links
 - CompTIA Certifications
 - IEEE Computer Society

Information Search

Use the following keywords to search for additional online resources that may be used for supporting your work on the course assignments:

Memory

CPU

Boolean operation

Data transfer

Port

Form factor

System bus

Clock rate

Drive

Operating system

Windows

Mac OS X

Authentication

Networking

Security

Protocols

NOTE: All links are subject to change without prior notice.

Course Plan

Instructional Methods

This course is designed to promote learner-centered activities and support the development of cognitive strategies and competencies necessary for effective task performance and critical problem solving. The course uses individual and group learning activities, performance-driven assignments, problem-based cases, projects, and discussions. These methods focus on building engaging learning experiences conducive to development of critical knowledge and skills that can be effectively applied in professional contexts.

Suggested Learning Approach

In this course, you will be studying individually and within a group of your peers. As you work on the course deliverables, you are encouraged to share ideas with your peers and your instructor, work collaboratively on projects and team assignments, raise critical questions, and provide constructive feedback.

Use the following advice to receive maximum learning benefits from your participation in this course:

DO	DON'T
<ul style="list-style-type: none"> ▪ Do take a proactive learning approach. ▪ Do share your thoughts on critical issues and potential problem solutions. ▪ Do plan your course work in advance. ▪ Do explore a variety of learning resources in addition to the textbook. ▪ Do offer relevant examples from your experience. ▪ Do make an effort to understand different points of view. ▪ Do connect concepts explored in this course to real-life professional situations and your own experiences. 	<ul style="list-style-type: none"> ▪ Don't assume there is only one correct answer to a question. ▪ Don't be afraid to share your perspective on the issues analyzed in the course. ▪ Don't be negative about the points of view that are different from yours. ▪ Don't underestimate the impact of collaboration on your learning. ▪ Don't limit your course experience to reading the textbook. ▪ Don't postpone your work on the course deliverables – work on small assignment components every day.

Course Outline

Unit	Reading Assignments	Graded Activities & Deliverables
1. Introduction to Computers	Pearson Certification Team, Chapter 1	<ul style="list-style-type: none"> ▪ Unit 1. Assignment 1. Integrated Circuit Technology ▪ Unit 1. Lab 1. Computer Model ▪ Unit 1. Quiz 1 (covers Unit 1)
2. Understanding Computer Math and Measurement	Pearson Certification Team, Chapter 2	<ul style="list-style-type: none"> ▪ Unit 2. Assignment 1. Transfer Time ▪ Unit 2. Lab 2. Number Conversion ▪ Unit 2. Analysis 1. Computer Shopper ▪ Unit 2. Quiz 2 (covers Unit 2)
3. I/O Ports and Devices	Pearson Certification Team, Chapter 3	<ul style="list-style-type: none"> ▪ Unit 3. Assignment 1. Video Summary 1 ▪ Unit 3. Lab 3. Exploring Busses ▪ Unit 3. Quiz 3 (covers Unit 3)
4. Motherboards and Busses	Pearson Certification Team, Chapter 4	<ul style="list-style-type: none"> ▪ Unit 4. Assignment 1. Video Summary 2 ▪ Unit 4. Research Paper 1. Port Expander ▪ Unit 4. Quiz 4 (covers Unit 4)
5. The CPU	Pearson Certification Team, Chapter 5	<ul style="list-style-type: none"> ▪ Unit 5. Assignment 1. Video Summary 3 ▪ Unit 5. Lab 4. Motherboard Components and Form Factors ▪ Unit 5. Exam 1 (covers Units 1-5) ▪ Unit 5. Analysis 1. Pentium Flaw
6. Memory and Storage	Pearson Certification Team, Chapter 6	<ul style="list-style-type: none"> ▪ Unit 6. Assignment 1. Video Summary 4 ▪ Unit 6. Research Paper 1. Network Attached Storage ▪ Unit 6. Quiz 5 (covers Unit 6) ▪ Unit 6. Analysis 1. Memory Cost
7. Computer Operation	Pearson Certification Team, Chapter 7	<ul style="list-style-type: none"> ▪ Unit 7. Assignment 1. Video Summary 5 ▪ Unit 7. Research Paper 1. CMOS ▪ Unit 7. Quiz 6 (covers Unit 7)
8. Operating Systems	Pearson Certification Team, Chapter 8	<ul style="list-style-type: none"> ▪ Unit 8. Assignment 1. Video Summary 6 ▪ Unit 8. Lab 5. Operating Systems ▪ Unit 8. Lab 6. Control Panel Exercises ▪ Unit 8. Quiz 7 (covers Unit 8) ▪ Unit 8. Analysis 1. System Performance
9. Basic Security	Pearson Certification Team, Chapter 9	<ul style="list-style-type: none"> ▪ Unit 9. Assignment 1. Video Summary 7 ▪ Unit 9. Lab 7. Security Basics ▪ Unit 9. Quiz 8 (covers Unit 9)
10. Troubleshooting and Networks	Pearson Certification Team, Chapters 10 and 11	<ul style="list-style-type: none"> ▪ Unit 10. Assignment 1. Video Summary 8 ▪ Unit 10. Lab 8. Troubleshooting ▪ Unit 10. Lab 9. Networking ▪ Unit 10. Analysis 1. Repair Shop
11. Course Review and Exam	Prowse, Review Chapters 6-11	<ul style="list-style-type: none"> ▪ Unit 11. Lab 10. Research Project† ▪ Unit 11. Exam 2 (covers Units 6-10)

† candidate for the student's ePortfolio

Evaluation and Grading

Evaluation Criteria

The graded assignments will be evaluated using the following weighted categories:

Category	Weight
Assignment	19%
Lab	15%
Analysis	20%
Research Paper	6%
Quiz	12%
Exam	28%
TOTAL	100%

Grade Conversion

The final grades will be calculated from the percentages earned in the course, as follows:

Grade	Percentage	Credit
A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

Graded Activities and Deliverables

Unit #	Unit Title	Grading Category	Activity/Deliverable Title	Grade Allocation (% of all graded work)
1	Introduction to Computers	Assignment	Integrated Circuit Technology	1.9%
		Lab	Computer Model	1.5%
		Quiz	Quiz 1	1.5%
2	Understanding Computer Math and Measurement	Assignment	Transfer Time	1.9%
		Lab	Number Conversion	1.5%
		Analysis	Computer Shopper	4%
		Quiz	Quiz 2	1.5%

Unit #	Unit Title	Grading Category	Activity/Deliverable Title	Grade Allocation (% of all graded work)
3	I/O Ports and Devices	Assignment	Video Summary 1	1.9%
		Lab	Exploring Busses	1.5%
		Quiz	Quiz 3	1.5%
4	Motherboards and Busses	Assignment	Video Summary 2	1.9%
		Research Paper	Port Expander	2%
		Quiz	Quiz 4	1.5%
5	The CPU	Assignment	Video Summary 3	1.9%
		Lab	Motherboard Components and Form Factors	1.5%
		Exam	Exam 1	14%
		Analysis	Pentium Flaw	4%
6	Memory and Storage	Assignment	Video Summary 4	1.9%
		Research Paper	Network Attached Storage	2%
		Quiz	Quiz 5	1.5%
		Analysis	Memory Cost	4%
7	Computer Operation	Assignment	Video Summary 5	1.9%
		Research Paper	CMOS	2%
		Quiz	Quiz 6	1.5%
8	Operating Systems	Assignment	Video Summary 6	1.9%
		Lab	Operating Systems	1.5%
			Control Panel Exercises	1.5%
		Quiz	Quiz 7	1.5%
9	Basic Security	Assignment	Video Summary 7	1.9%
		Lab	Security Basics	1.5%
		Quiz	Quiz 8	1.5%
10	Troubleshooting and Networks	Assignment	Video Summary 8	1.9%
		Lab	Troubleshooting	1.5%
			Networking	1.5%
		Analysis	Repair Shop	4%
11	Course Review and Exam	Lab	Research Project	1.5%
		Exam	Exam 2	14%

Academic Integrity

All students must comply with the policies that regulate all forms of academic dishonesty, or academic misconduct, including plagiarism, self-plagiarism, fabrication, deception, cheating, and sabotage. For more information on the academic honesty policies, refer to the Student Handbook and the Course Catalog.

(End of Syllabus)