NITSÁHÁKEES   **NÁHAT'Á**   **'IINÁ**   **SIIH HASIN**

NAVAJO TECHNICAL UNIVERSITY

ESTABLISHED 1979

Introduction to Digital/Hardware Programming
3 Credits
IT 118
Spring 2021

Instructor: Tsosie Schneider   **E-mail**: tschneider@navajotech.edu
Office Hours: MWF 3:00pm-4:00PM via Zoom   **Office Phone**: TBA

Class Location: Chinle site, Building F 220
Class Meeting Times: Th 6:00 PM-8:40 PM

Required Materials:
Textbooks: Programming Logic and Design, Introductory (9th Edition) ISBN: 9781337109635
Tools: Pens, Notebook, Memory stick, printing paper, and laptop, Arduino Explore IoT
              Kit
Laptop and Internet Access: Every student is required to own a laptop and have internet access.

Mission, Vision, and Philosophy
Mission: Navajo Technical University honors Diné culture and language, while educating for the future.

Vision: Navajo Technical University provides an excellent educational experience in a supportive, culturally diverse environment, enabling all community members to grow intellectually, culturally, and economically.

Philosophy: Through the teachings of Nitsáhákees (thinking), Nahátá (planning), Íína (implementing), and Siihasin (reflection), students acquire quality education in diverse fields, while preserving cultural values and gaining economic opportunities.

Course Description
       This course will introduce students to the knowledge base necessary for a deep understanding of how computers work from the transistor level to abstract programming to accomplish tasks and solve problems. Fundamental understanding of how information is stored and manipulated at the bit level will be explored within the context of what is necessary to be successful in crafting solutions as a programmer. Boolean algebra and number systems relevant to computing will be introduced and mastered as it pertains to digital logic design and hardware programming. Software Defined Hardware and Open Source hardware will be introduced and projects will be completed demonstrating the ability to apply what is learned from the content of the course.

STUDENT OUTCOMES	COURSE MEASUREMENTS
Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	Evidence of test with a 70% accuracy
Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	Evidence of test with a 70% accuracy
Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	Evidence of test with a 70% accuracy
Use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals.	Evidence of test with a 70% accuracy

Week Course Outline

Week	Date	Topics	Projects	Quiz
1	1/17/22	Introduction and Syllabus		
2	1/24/22	An Overview of Computers and Programming		
3	1/31/22	An Overview of Computers and Programming		Ch. 1
4	2/7/22	Elements of High-Quality Programs		
5	2/14/22	Elements of High-Quality Programs		Ch. 2
6	2/21/22	Understanding Structure		
7	2/28/22	Understanding Structure	#1	Ch. 3
8	3/7/22	**Mid-term Exam**		Ch. 4
	3/14/22	Spring Break		
9	3/21/22	Making Decisions	#2	
10	3/28/22	Looping		Ch. 5
11	4/4/22	Looping		
12	4/11/22	Arrays	#3	Ch. 6
13	4/18/22	Arrays		
14	4/25/22	File Handling and Applications	#4	Ch. 7
15	5/2/22	File Handling and Application		
16	5/9/22	**Final Exam**	#5	

FINAL EXAM Schedule: TBD

Grading Plan:

Coursework will be weighted as follows:

1.	Attendance/Participation	10%
2.	Quizzes	20%
3.	Programming Projects	25%
4.	Mid-term Exam	20%
5.	Final Exam	25%
		100%

Grading Policy

Each student must do their own quizzes and programming assignments. Discussion among students on homework and cases is encouraged for clarification of assignments, technical details of using software, and structuring major steps of solutions - especially on the course's Web site. Students must do their own work on the homework and exam. Cheating and Plagiarism are strictly forbidden. Cheating includes but is not limited to: plagiarism, submission of work that is not the student's own, submission or use of falsified data, unauthorized access to exam or assignment, use of unauthorized material during an exam, supplying or communicating unauthorized information for an assignment or exam.

Participation

Students are expected to attend and participate in all class activities- as listed above, as it is 10% of the grade. Points will be given to students who actively participate in class activities including field trips, laboratories, and ask questions of guest speakers and other presenters. Online activity will be awarded for on-time submission of assignments.

Cell phone and headphone use

Please turn cell phones off or place them on silence or vibrate mode **BEFORE** coming to class. Also, answer cell phones **OUTSIDE OF CLASS** (not in the classroom). Exercising cell phone use courtesy is appreciated by both the instructor and classmates. Headphones are to be removed before coming to class.

Attendance Policy

Students are expected to log into BBL class page every week regularly, complete course work and take quizzes in a timely manner. This will serve as attendance. Absence from BBLearn class page, regardless of the reason, does not relieve the student of his/her responsibility to complete all course work by the required deadlines. Incomplete or missing quizzes will necessarily affect the student's grades. Instructors will report excessive and/or unexplained absences to the Counseling Department for investigation and potential intervention. Instructors may drop students from the class after three (3) weeks of inactivity in BBL class page unless prior arrangements are made with the instructor to make up work and the instructor deems any excuse acceptable.

Study Time Outside of Class for Face-to-Face Courses
For every credit hour spent in a class, a student is expected to spend two hours (2) outside of class studying the course materials.

Academic Integrity

Integrity (honesty) is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. Students who engage in academic dishonesty diminish their education and bring discredit to the University community. Avoid situations likely to compromise academic integrity such as: cheating, facilitating academic dishonesty, and plagiarism; modifying academic work to obtain additional credit in the same class unless approved in advance by the instructor, failure to observe rules of academic integrity established by the instructor. The use of another person's ideas or work claimed as your own without acknowledging the original source is known as plagiarism and is prohibited.

Diné Philosophy of Education

The Diné Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Diné philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth: Nitsáhákees, Nahát'á, Íína and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

Students with Disabilities

The Navajo Technical University and Chinle Learning Center are committed to serving all enrolled students in a non-discriminatory and accommodating manner. Any student who feels he/she may need an accommodation based on the impact of disability or needs special accommodations should inform the instructor privately of such so that accommodations arrangement can be made. Students who need an accommodation should also contact the Special Needs Counselor at 505-786-4138.

Computer Services

Students using computers at NTU are expected to follow the Information Technology policy and procedures. Students using NTU e-mail, Internet Services, or any university software or hardware, should have an understanding that this technology is provided by NTU and is the property of NTU. The university reserves the right to review and monitor the use of hardware and software belonging to the school or personal equipment utilized on school premises. Such rights include the auditing of documents sent, received, or viewed through the Internet and e-mail.

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