

# Phoenix Christian Unified Schools

## CIS0410 HONORS – Advanced Computers

### Course Scope & Sequence

#### **COURSE DESCRIPTION:**

This full year course is diverse and demanding. It will cover: client and server support; OS and NOS; installation, upgrade, and maintenance; LAN, WAN, Wireless, hardware and firmware, configuration, implementation; productivity and protection software; videography and information production; data storage, backups, imaging; remote access, RDC, VNC; research, analysis, application, and comparison of Open Source vs. Microsoft; additional research topics will include ethics, biometrics, cryptography, intrusion, artificial intelligence, virtual systems, holographic systems, and bias regarding information systems; one project requires after school involvement with a live theater production regarding sound & lights. Requirements also include business type research/position papers & presentations

Prerequisite: CIS305

#### **COURSE SCOPE AND SEQUENCE:**

##### **1: Fundamental Operations and Concepts**

- A. Manage a complex technology system such as a local area network, video distribution of a school, or lighting / sound for a production
- B. Set up and manage a homework hotline, tutoring site, discussion group, threaded discussion and/or e-mail system for students and parents

#### **Implementation:**

Week 1-12:

##### **SECTION #1**

Week 1 - 4

1. Create Accounts
2. Introduce to repetitive maintenance
3. Data Storage
4. Backups
5. Security Camera Monitoring
6. Student Information Monitor (SIM)
7. Public Announcement Marquee
8. Build Independent LAN:
9. Build & Test Cables & Install Network Switch/Hub
10. Install OS & configure NOS on Clients and Server
11. Install productivity and protection software - checksheet
12. Test – OS installation & configuration

##### **SECTION #2**

Week 5 & 6

1. Check sheet image on 2 laptops
2. Pull Image from 2 Laptops
3. Push Image to 2 Laptops
4. Install Wireless Network Switch / Access Point
5. MAC address & WEP security
6. Verify specifications on distance.
  - i. 802.11 – A, B, G
7. Remote Access – RDC; VNC
8. Test – MAC filtering & VNC

##### **SECTION #3**

Week 7 – 10

1. Manage lighting / sound for a production
2. Participate as Volunteers for school stage production
3. Research, Compile, Time sound clips

4. Compile chosen sound clips for production on CD
5. Create unique DVD with original sounds
  - i. Post on Student Information Monitor
6. Identify stage microphones with sound board
7. Miscellaneous sound as designated by director
8. Perform lighting tasks as designated by director
9. Test – Power Point light & sound

#### **SECTION #4**

Week 11 & 12

1. Manage school specific threaded discussion site/ Interland email for students
2. Using Server from Section #1 install Blog software
3. Using Clients from Section #1 test Blog Software
4. Test blog software from Student Lab computers
5. Test – Value of Blog compared to IM or Email

## **2: Social, Ethical and Human Issues**

- A. Analyze current changes in technologies and predict the effect those changes have on the workplace and society
- B. Advocate for legal and ethical behaviors among peers, family, and community regarding the use of technology and information.

#### **Implementation:**

Week 13-16

#### **SECTION #5**

Week 13 & 14

1. Discuss & create list of technologies (1 per student)
  - i. Include: Biometrics, cryptography, intrusion, artificial intelligence, virtual systems, holographics, wireless, security video, data storage & backups, remote access – RDP & VNC,
2. Research initial, historical introduction of topic, note modifications/changes and applications of topic, make predictions on how those changes may affect the current and future workplace, society, and education.
3. Capture data in paper and presentation
4. Present findings
5. Test – How technology protects students

#### **SECTION #6**

Week 15 & 16

1. Discuss & create list of current legal / ethical issues regarding public/private use of technology (1 per student)
2. Research topic, drafting paper and presentation
3. Present findings; speaking / arguing in favor of legal & ethical behavior
4. Option – Debate
5. Test – Identify, define, discuss 3 legal/ethical issues and how they impact personal student life

## **3: Technology Communications Tools**

- A. Use technology to compile, synthesize, produce, and disseminate information, models, and other creative works.
- B. Participate in a student think-tank simulation to solve a technology-based problem

#### **Implementation:**

Week 17 – 18

#### **SECTION #7**

Week 17

1. Manage Student Information Monitor
2. Copy DVD & Miscellaneous media to PC
3. Learn functionality of PC Based DVD software
4. Manage Calendar for appropriate rotation of media
5. Test – Discuss 3 optional uses of the SIM with justification for each

#### **SECTION #8**

Week 18

1. Discuss & create list of technology-based problems (1 per student)
2. Refine discussion limiting input to school
3. Research topic, drafting paper & presentation, include resolution
4. Present findings
5. Test – Discuss 3 methods of physical security including the description of the issue being prevented.

#### **4: Technology Productivity Tools**

- A. Demonstrate technical standards, practices and techniques in videography by creating a product.

##### **Implementation:**

Week 19 – 23

##### **SECTION #9**

Week 19 – 23

1. Establish teams of 2/3
2. Discuss & create list of standards, practices and techniques (1 per student)
3. Research topic, drafting presentation including intention of video usage
4. Create & review video
5. Test – Discuss video project topic & 3 lessons learned while creating product

#### **5: Technology Research Tools**

- A. Design a research project using a variety of technologies to solve a real-world problem
- B. Evaluate the accuracy, relevance appropriateness, comprehensiveness and bias of electronic information sources
  - a. Compare and contrast bias in electronic information resources
  - b. Create a presentation on bias found in electronic information resources to present to a younger audience

##### **Implementation:**

Week 24-29

##### **SECTION #10**

Week 24 – 26

1. Review Section #8 (technology based problems)
2. Research details of implementing solutions
3. Pick 2 teams and debate solutions arriving at 2 possible to employ
4. Test – each team attempts solution
5. Test – each team switches problem attempting their own solution
6. Discuss / debate findings
7. Test – Discuss the potential steps in an effective problem solving process model

##### **SECTION #11**

Week 27 & 29

1. Review Section #1 - #9
2. Define terms accuracy, relevance, appropriateness, comprehensiveness and bias
3. Discuss terms and their relation to previously identified information sources
4. Draft paper applying all definitions to previously identified information sources
5. Debate comparison / contrast of bias in electronic information resources
6. Draft presentation on bias for younger audience
7. Test – Define BIAS and describe an IT issue regarding BIAS and how BIAS impacts education

#### **6: Technology as a Tool for Problem Solving and Decision-Making**

- A. Collaborate with peers, experts and others to compile, synthesize, produce and disseminate information and models for the purpose of suggesting solutions to a complex problem.

##### **Implementation:**

Week 30-36

##### **SECTION #12**

Week 31-36

1. Review Section #1-#11
2. Discuss each sections relevance to today's business
3. Discuss and identify 10 ways technology is used in business
4. Discuss meaning of business
5. Re-review section #1 based on costs
6. Re-install OS on ½ partition
7. Install Linux on ½ partition
8. Install Open Office
9. Compare & contrast OS & productivity software
10. Draft paper & presentation based on comparison
11. Present findings
12. Test – Open Source VS Microsoft