Scientific & Technical Visualization I

Teacher: Tonja Canady  
E-Mail: tcanady@wsfcs.k12.nc.us  
Phone: 336-703-6754  
Room: 330  
Subject: Technology Education  
[Career and Technical Education Teacher]

This course focuses on the principles, concepts, and use of complex graphic tools to visually explain scientific and/or technical concepts. Emphasis is placed on using computer software and hardware to enhance or generate data driven charts and graphs, 2D graphics, 3D graphics, and animations. It is the intent of this course to teach computer graphics skills and also to reinforce math, science, and visual design.

The course of study includes:

A  LEADERSHIP DEVELOPMENT
   V101.  Explain basic business meeting skills and goal setting.  
   V101.01  Identify basic business meeting procedures.  
   V101.02  Establish personal and organizational goals.

B  HISTORY AND IMPACT OF SCIENTIFIC & TECHNICAL VISUALIZATION
   V102.  Recognize the history and impact of scientific & technical visualization.  
   V102.01  Describe the historical significance of scientific & technical visualization.  
   V102.02  Describe the technological advancements of scientific & technical visualization.  
   V102.03  Recognize types of scientific & technical visualization and related careers.

C  VISUALIZATION TOOLS
   V103.  Analyze the use of visualization tools.  
   V103.01  Describe basic computer hardware and software.  
   V103.02  Interpret the use and application of different types of software programs.  
   V103.03  Summarize the ethical use of electronic media.  
   V103.04  Demonstrate basic computer knowledge.

D  UNDERLYING PRINCIPLES OF VISUALIZATION
   V104.  Apply basic principles of visualization.  
   V104.01  Describe design fundamentals.  
   V104.02  Interpret color and its applications.  
   V104.03  Discuss vector and bitmap images.  
   V104.04  Identify effective 2D presentation techniques.  
   V104.05  Describe 2D software applications and their basic functions.  
   V104.06  Demonstrate effective presentation techniques using appropriate design fundamentals.
DATA VISUALIZATION

V105. Synthesize data for scientific & technical visualizations. 12%
V105.01 Evaluate methods for displaying data using charts and graphs. 5%
V105.02 Describe the steps of a design brief. 5%
V105.03 Interpret data for use in charts and graphs. 2%
V105.04 Apply data to make an appropriate graph.

STATIC AND DYNAMIC VISUALIZATION

V106. Demonstrate visualization processes. 16%
V106.01 Recognize digital image formats. 3%
V106.02 Summarize basic 3D modeling concepts. 8%
V106.03 Recognize basic rendering techniques. 3%
V106.04 Summarize basic animation techniques. 2%
V106.05 Produce a 3D model with animation and rendering.

Supplies
- 3-ring notebook with Packs of loose leaf notebook paper
- Blue or black pens & No. 2 pencils for daily use
- Personal headphones (use for tutorials)
- Jump Drive (optional for saving student work at end of course)

Classroom Expectations

1. Bring your supplies daily
2. No USB, jump drives, or other storage media
3. No food or drink
4. Be courteous
5. You may not access another student’s work, home folder, CTE folder, or computer

Rules/Regulations/Procedures
Please become familiar with the WSFCS Internet Use Policy, school handbook, this handbook provided crucial information regarding tardiness, absenteeism, and behavioral expectations. Academic dishonesty will result in receiving a zero on the work being completed. Students are expected to keep the classroom clean and orderly.

Other class rules that are expected are as followed:
1. Follow all Safety Procedures and teacher instructions.
2. Place all personal items in the designated area.
3. Place all completed assignments in the corresponding assignment tray only.
4. Logoff computers and push in chairs
5. Follow classroom expectations
Grading Policy
Assignments are expected to be completed and turned in on time. Assignments may be turned in 1 day late; late work will receive a 10% grade reduction. A grade given for an assignment when a substitute is used will not be changed for any reason. Students have 2 days to make up the work due to an absence from school. If a student is will be out of school for a school related activity, the student is responsible for completing any assignments missed.

*If absent, be sure to turn in work within 2 days of returning to school
*Check the calendar for assignments if Ms. Canady is absent, turn in all assignments to the substitute.

<table>
<thead>
<tr>
<th>Percentage (Grade)</th>
<th>Term 1</th>
<th>Term 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) 93-100</td>
<td>Semester 1 (1st 9 weeks) 37.5%</td>
<td>Semester 3 (3rd 9 weeks) 37.5%</td>
</tr>
<tr>
<td>(B) 85-92</td>
<td>Semester 2 (2nd 9 weeks) 37.5%</td>
<td>Semester 4 (4th 9 weeks) 37.5%</td>
</tr>
<tr>
<td>(C) 77-84</td>
<td>Final Exam 25%</td>
<td>Final Exam 25%</td>
</tr>
<tr>
<td>(D) 70-76</td>
<td>Final Mark: 100%</td>
<td>Final Mark: 100%</td>
</tr>
<tr>
<td>(F) 0-69</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*All students are required to take the Scientific & Technical Visualization I Final Examination to receive credit for courses taken.

Attendance Policy
The student must request any work he/she missed while absent and will need to turn in any work that was due on the day of their absence.

A student who is absent 0-4 days is at no risk of failing the course based on absenteeism. However, a student who is absent 5-10 days is at risk of failing the course due to absenteeism; it is at the teacher’s discretion whether the student passes the course. Any student who is absent more than 10 days will automatically fail unless a waiver is granted. All absentee excuses should be presented to the clerk in the attendance office within three (3) school days.

It is the student’s responsibility to make-up any and all missed assignments during their absence. The student will have 2 days from the date of the absence to complete the assignment(s). If the work is not made-up, the student will receive a zero for the assignment. Once a zero is entered for an assignment, it will not be changed or removed. If needed, assignments should be made-up after school and not during class time. Students who are absent from class but are present at school (i.e.: assembly or scheduled appointments) are still required to make up any work missed.

WSFCS Attendance Policy - page 6-7
Technology and School Computer Use Agreement

1. The computers in the lab are provided with local, state, and federal tax dollars. They are only to be used for academic purposes.

2. Students may NOT check their email, download or install computer programs, make use of CHAT programs, send or receive instant text messages, listen to music CD’s, play Internet radio programs, play computer games, send or receive any test/quiz information.

3. Students must login with their assigned username. Students are NOT to login for anyone other than themselves.

4. Students must report any computer problems to the instructor as soon as the problem occurs.

5. Students should NOT give out any personal information (social security number, address, or phone number) to anyone via the Internet.

6. Students are to use search engines and directories for academic or school-related topics only.

7. Students must treat the computers with respect and care.

8. Students must NOT purposefully visit any website that contains nudity, vulgar terms, hateful messages, or any sites that do not meet all WS/FCS standards.

9. Students are to use earphones and microphones only for school-related work.

10. Students are not to make any changes in the computer settings.

11. Remote access to and from school computers is prohibited.

12. I understand that the instructor has the capability to see and record all computer activity in the lab. This information will be used to justify closure of a student’s computer account.

By my signature below I affirm that I understand the above rules. Noncompliance will result in total loss of all computer access and my computer account will be closed. If my computer account is closed, I will be required to complete alternate, non-technology assignments (i.e. research papers, written assignments) in order to meet course requirements. I could also receive disciplinary action from the school administration. Failure to sign below will result in automatic closure of my computer account.

Print Student Name: _______________________________ Period: ① ② ③ ④

Student Signature: _______________________________ Date: __________

Parent Signature: _______________________________ Date: __________