

Independent Study Course Syllabus

Course Number: TEC 915

Course Title: Computer Graphics for Teachers

☐ Online ☒ Distance Learning

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Units: 3

Grade Level: K-12

Course Description

Designed for the beginner, this course progressively introduces the basic concepts and skills required to master the tools necessary to create graphic-laden classroom presentations (in both Windows or Macintosh platforms). In no time you'll be creating your own graphics for quizzes, handouts, newsletters - even adding graphics to your web page!

Projects for each module maximize the learning experience while focusing on creating useful and meaningful teaching materials. This hands-on, skills-based course progressively introduces the basic tools and techniques common to all computer graphic programs (focusing on Paint and Draw, the two basic elements of all graphic programs).

The addition of the visual element engages, captivates and motivates students of all ages. Upon completion participants will have a foundation in graphic tools and techniques, transferable to the graphic program(s) ultimately used. Materials include a workbook and CD-ROM containing demonstration software for both Mac and Windows.

IMPORTANT NOTE: This course does not currently support Mac OS 10.7 and above.

Course Dates:

Self-paced; students may enroll at any time and have up to one year from the date of registration, and no less than three weeks (one week per credit), to complete the course.

Primary Learning Outcomes

Upon completion of the course participants shall:

- Be familiar with the history of computer graphics.
- Acquaint themselves with the terms and concepts of computer graphics.
- Appreciate the uniqueness and capabilities of Paint and Draw programs.
- Identify the tools found in basic Paint and Draw programs.
- Develop the skills to produce graphic materials on the computer.
- Demonstrate competency in graphics by creating a variety of artwork.
- Apply graphic techniques to enhance teaching materials.
- Consider lesson plans/productivity ideas to use graphics in the classroom.
- Link standards to technology-based curriculum.

Standards - Based Instruction

...To ensure that students are prepared for their future we should: include technology and information literacy in state and local standards for what students should know and be able to do; ensure students use technology appropriately and responsibly; develop new student assessment tools; and strengthen partnerships with industry to help meet the work force needs of the future.

*Taken from the Executive Summary of the U.S. Department of Education National Education Technology Plan
(<http://www.ed.gov/Technology/elearning/>)*

Assignments contained within this course meet several important proficiency guidelines as defined by **ISTE** (International Society for Technology in Education) in their **NETS** (National Educational Technology Standards).

The **ISTE NETS-S** (technology standards for students) are divided into six broad categories. Standards within each category are to be introduced, reinforced, and mastered by students.

These categories provide a framework for linking performance indicators within the Profiles for Technology Literate Students to the standards.

Teachers can use these standards and profiles as guidelines for planning technology-based activities in which students achieve success in learning, communication, and life skills. For more about ISTE go to: <http://www.iste.org/>

NETS - S (Technology Standards for Students) addressed throughout the course are:

Found at: <http://www.iste.org/standards/iste-standards/standards-for-students>

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:

- a. apply existing knowledge to generate new ideas, products, or processes.
- b. create original works as a means of personal or group expression.
- c. use models and simulations to explore complex systems and issues.
- d. identify trends and forecast possibilities.

2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:

- a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
- b. communicate information and ideas effectively to multiple audiences using a variety of media and formats
- c. develop cultural understanding and global awareness by engaging with learners of other cultures
- d. contribute to project teams to produce original works or solve problems.

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students:

- a. plan strategies to guide inquiry
- b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- d. process data and report results.

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:

- a. identify and define authentic problems and significant questions for investigation.
- b. plan and manage activities to develop a solution or complete a project.
- c. collect and analyze data to identify solutions and/or make informed decisions.
- d. use multiple processes and diverse perspectives to explore alternative solutions.

5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:

- a. advocate and practice safe, legal, and responsible use of information and technology.
- b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- c. demonstrate personal responsibility for lifelong learning.
- d. exhibit leadership for digital citizenship.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:

- a. understand and use technology systems.
- b. select and use applications effectively and productively.
- c. troubleshoot systems and applications.
- d. transfer current knowledge to learning of new technologies

The five categories of the **ISTE NETS-T** (technology standards for teachers) define the fundamental criteria for applying technology in educational settings. Performance indicators for each standard provide specific outcomes to be measured when developing a set of assessment tools.

NETS-T (Technology Standards for Teachers)

Found at: <http://www.iste.org/standards/iste-standards/standards-for-teachers>

1. Facilitate and Inspire Student Learning and Creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:

- a. promote, support, and model creative and innovative thinking and inventiveness.
- b. engage students in exploring real-world issues and solving authentic problems using digital tools and resources.
- c. promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes.
- d. model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.

2. Design and Develop Digital-Age Learning Experiences and Assessments

Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS-S. Teachers:

- a. design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity.
- b. develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress.
- c. customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources.
- d. provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching.

3. Model Digital-Age Work and Learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:

- a. demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations.
- b. collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
- c. communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats.
- d. model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning.

4. Promote and Model Digital Citizenship and Responsibility

Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:

- a. advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources.
- b. address the diverse needs of all learners by using learner-centered strategies providing equitable access to appropriate digital tools and resources.
- c. promote and model digital etiquette and responsible social interactions related to the use of technology and information.
- d. develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools.

5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

- a. participate in local and global learning communities to explore creative applications of technology to improve student learning.

- b. exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making, community building, developing leadership and technology skills of others.
- c. evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning.
- d. contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community.

Course Materials

Workbook - TEC 915: Computer Graphics for Teachers, by Steve Young.

CD-ROM - containing demonstration software (for Macintosh and Windows), graphics folder, and supplemental instructional materials.

IMPORTANT NOTE: This course does not currently support Mac OS 10.7 and above.

Course Requirements

Hardware/Peripherals:

Computer with a CD-ROM drive; printer (black and white will suffice - you do NOT need to return color copies of any assignments).

Assignments (totaling 100 points, maximum):

- Complete the pre-course teacher survey (1 point).
- Complete the 10 Paint assignments (4 points each for a total of 40 points).
- Complete the 8 Draw assignments (4 points each for a total of 32 points).
- Complete your choice of any 3 of the 5 elective assignments presented (8 points each for a total of 24 points).
- Complete the post-course teacher survey (1 point).
- Complete the Standards Correlation Chart (2 points).
- Complete and return a course evaluation.
- Submit request for online grading.

General Information

When all assignments have been completed, return your packet to the address on page 4 of the workbook. It is absolutely imperative you label your packet with your full name; without identification I've no idea whose work I'm grading!

Remember to request online grading the day you return your packet (no sooner, please). Written assignments may be word processed or handwritten (please consider word processing if your penmanship is as illegible as mine!).

Return only your completed assignments, not the entire workbook. I suggest you generate and retain a copy of your work so you will have a back-up to resend in the unlikely event the post office loses your packet - an extremely rare occurrence, but not worth taking the chance that it might happen to you. Please ensure you have affixed adequate postage to your packet; *insufficiently or unposted packets will not be accepted.*

I can no longer accommodate packets returned which require my signature for delivery. If using USPS Express Mail remember to waive the signature requirement as the carrier will not deliver until someone is home to verify receipt.

If you are concerned about delivery of your packet, rather than asking me to confirm receipt I ask that you please add "Delivery Confirmation" so you can track delivery online. I strive to process grades expeditiously but found that the time spent responding to e-mails to confirm delivery significantly cut in to my allotted grading time. Thanks for your cooperation.

Once I have reviewed your work and submitted your grade I will email you notification that your grade is in FPU's hands, awaiting posting. Per FPU policy, a minimum of one week per unit of study (three weeks) must transpire from date of enrollment to the postmark on your returned packet.

I can not accept coursework early; *if your packet is postmarked less than three weeks from your date of enrollment expect me to return it to you so you can hold it the required length of time to resubmit then.*

Most importantly, never forget that I am readily available via e-mail (preferred) or phone (evenings and weekends) so do not hesitate to call if questions or concerns arise. Thanks!

Grading Scale

Letter grades, should one be requested, will be on the following scale:

90% -100% = A

80% - 89% = B or 'Credit'

79% or below = 'No Credit'

Participants striving for an 'A' should demonstrate the ability to follow directions, neatness and pride in their work, thoughtfulness in responses to all written assignments, and consider completing the 'Extra Credit' portions of assignments when the opportunity presents.

Creativity, although appreciated and admired, is not requisite to the awarding of an 'A' in the course. Students taking the course for credit are expected to adequately complete all required assignments.

Evidence of Learning

Students will be evaluated on the ability to follow directions as described in the workbook to complete assigned projects which demonstrate mastery of the tools and techniques. Written assignments should contain thoughtful, reflective responses applicable to their personal and/ or professional experiences which indicate they have put thought and effort in to their replies.

Instructor/Student Contact

I will email you to verify receipt of your registration and let you know I am preparing your materials for shipping (usually the next day), and again once I have submitted your grade to FPU (I will also send you a copy of your grade via surface mail). I can not stress this enough ... never hesitate to contact me - that's why I'm here! When contacting me e-mail is preferred, but if you need to phone please do so after 10:00 AM PT, being mindful of time zone differences, as early morning calls wake the family. Thanks for your cooperation and understanding.

References

<http://www.kinderart.com/index.html> <http://www.ceismc.gatech.edu/busyt/art.shtml>

http://neta.lps.org/contests/graphics_cont.html <http://falcon.jmu.edu/-ramseyil/arteducation.htm>

www.mcrel.org/standards-benchmarks www.education-world.com/standards

www.sps3000.net/etpdp/background/standards.htm <http://www.academicbenchmarks.com/search>

Grading Rubric	Exemplary (A)	Passing (B or Credit)	Failing (No Credit)
Use of tools and techniques (T&T)	Directions followed concisely. Correct use of T&T evident. Additional flourishes added. Did extra credit work.	Inconsistently followed directions. Shied away from using more complex T&T.	Directions not followed. Some steps omitted. Incorrect T&T used.
Effort and Perseverance	Project continued until it was complete; effort set forth beyond that required; took pride in going beyond the basic requirements. Experimented freely and frequently.	With a bit more effort and dedication project could have improved; lacks finished quality; chose an easy project and did it indifferently.	Project not seen to completion. Seems hurried to "just get it done" and move to the next project.
Craftsmanship Consistency	Project completely and patiently done with great attention to detail; it was as good as hard work could make it. Techniques consistently and properly demonstrated throughout the project.	Average craftsmanship but not as good as possible with more care, time, effort and attention to detail. Quality varied from project to project.	Below average effort. Lack of pride in work. Inconsistent use of tools/techniques from project to project.
Written Assignments	Depth of thought, thorough, candid and reflective replies. Relates personal and professional experiences when appropriate. Few, if any, errors in spelling, punctuation, grammar. Neatness and pride evident throughout. Thought provoking at times.	Replies vague, generic, superficial. Strays from topic. Errors in grammar, spelling and punctuation a distraction. Word processing advised due to poor penmanship. Seems rushed. Not focused or engaged in topic.	Assignments missing or incomplete. Failed to follow directions as set forth in materials. "Yes"- "No" replies without further discussion justifying response.
Standards Correlation Chart	Aligned 5 assignments to ISTE NETS-T standards and performance indicators, demonstrating understanding of the principles of the standard(s).	Completed but did not chose applicable standard or performance indicator.	Failed to complete the assignment or align all 5 chosen assignments.

Schedule of Topics and Assignments

- Section 1. Pre-course teacher survey.
- Section 2. Computer basics, a review.
- Section 3. Paint programs.
- Section 4. Draw programs.
- Section 5. Elective projects; putting it all together.
- Section 6. Historical perspective of computer graphics (on CD-ROM).
- Section 7. Post-course teacher survey.
- Section 8. Standards Correlation Chart.
- Section 9. Course evaluation.
- Section 10. Submit Request For Online Grading

Final Course Grade and Transcripts

When all work for the course has been completed, students will need to logon to the Center for Professional Development website (<http://ce.fresno.edu/cpd>) to “Submit Grade Form”. Once the instructor fills out the grade form online, students may log back in to request their Grade Report as well as order transcripts online. Please allow at least two weeks for the final grade to be posted. For more information see the Independent Studies Policies and Procedures that were sent to you when you received your course materials, or in your online course. They are available, also at <http://ce.fresno.edu/cpd> - under General Information > CPD Policies.

Plagiarism and Academic Honesty

All people participating in the educational process at Fresno Pacific University are expected to pursue honesty and integrity in all aspects of their academic work. Academic dishonesty, including plagiarism, will be handled according to the procedures set forth in the Fresno Pacific University Catalog. URL <http://www.fresno.edu>.

CONTINUING EDUCATION PROGRAM STUDENT LEARNING OUTCOMES:

CE 1. Demonstrate proficient written communication by articulating a clear focus, synthesizing arguments, and utilizing standard formats in order to inform and persuade others, and present information applicable to targeted use.
CE 2. Demonstrate comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts.
CE 3. Reflect on their personal and professional growth and provide evidence of how such reflection is utilized to manage personal and professional improvement.
CE 4. Apply critical thinking competencies by generating probing questions, recognizing underlying assumptions, interpreting and evaluating relevant information, and applying their understandings to the professional setting.
CE 5. Reflect on values that inspire high standards of professional and ethical behavior as they pursue excellence in applying new learning to their chosen field.
CE 6. Identify information needed in order to fully understand a topic or task, organize that information, identify the best sources of information for a given enquiry, locate and critically evaluate sources, and accurately and effectively share that information.

FRESNO PACIFIC UNIVERSITY STUDENT LEARNING OUTCOMES:

Student Learning Outcomes Oral Communication: Students will <i>exhibit</i> clear, engaging, and confident oral communication – in both individual and group settings – and will critically <i>evaluate</i> content and delivery components.
Written Communication: Students will <i>demonstrate</i> proficient written communication by <i>articulating</i> a clear focus, <i>synthesizing</i> arguments, and utilizing standard formats in order to <i>inform</i> and <i>persuade</i> others.
Content Knowledge: Students will <i>demonstrate</i> comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts.
Reflection: Students will <i>reflect</i> on their personal and professional growth and <i>provide evidence</i> of how such reflection is utilized to manage personal and vocational improvement.
Critical Thinking: Students will <i>apply</i> critical thinking competencies by <i>generating</i> probing questions, <i>recognizing</i> underlying assumptions, <i>interpreting</i> and <i>evaluating</i> relevant information, and <i>applying</i> their understandings to new situations.
Moral Reasoning: Students will <i>identify</i> and <i>apply</i> moral reasoning and ethical decision-making skills, and <i>articulate</i> the norms and principles underlying a Christian world-view.

Service: Students will <i>demonstrate</i> service and reconciliation as a way of leadership.
Cultural and Global Perspective: Students will <i>identify</i> personal, cultural, and global perspectives and will employ these perspectives to <i>evaluate</i> complex systems.
Quantitative Reasoning: Students will accurately <i>compute</i> calculations and symbolic operations and <i>explain</i> their use in a field of study.
Information Literacy: Students will <i>identify</i> information needed in order to fully understand a topic or task, <i>explain</i> how that information is organized, <i>identify</i> the best sources of information for a given enquiry, <i>locate</i> and critically <i>evaluate</i> sources, and accurately and effectively <i>share</i> that information.

Course Completion Checklist

☐ Teacher Survey #1

Paint Projects

- ☐ Project 1: Transparent Cube
- ☐ Project 2: Solid Cube
- ☐ Project 3: Cylinder
- ☐ Project 4: Fish
- ☐ Project 5: Tree
- ☐ Project 6: Face
- ☐ Project 7: Monument
- ☐ Project 8: House
- ☐ Project 9: Balloons
- ☐ Project 10: Eagle and Mountain

Draw Projects

- ☐ Project 1: Shapes and Layers
- ☐ Project 2: Face
- ☐ Project 3: Flowchart
- ☐ Project 4: Shadows
- ☐ Project 5: Newsletter Project 6: Floor Plan
- ☐ Project 7: Annotated Drawing
- ☐ Project 8: Sailboat

Elective Assignments (choose any 3 of the 5 presented)

- ☐ Elective Project #_____
- ☐ Elective Project #_____
- ☐ Elective Project #_____

- ☐ **Standards Survey**
- ☐ **Standards Correlation Chart Teacher**
- ☐ **Survey #2**
- ☐ **Course Evaluation**
- ☐ **Submit Request for Online Grading**