



University of Engineering and Technology
School of Computer Science
Syllabus of Course – Academic Period 2017-I

1. Code and Name: CS351. Topics in Computer Graphics

2. Credits: 4

3. Hours of theory and Lab: 2 HT; 4 HP;

4. Professor(s)

Meetings after coordination with the professor

5. Bibliography

[HB90] Donald Hearn and Pauline Baker. *Computer Graphics in C*. Prentice Hall, 1990.

[Hug+13] John F. Hughes et al. *Computer Graphics - Principles and Practice 3rd Edition*. Addison-Wesley, 2013.

6. Information about the course

(a) **Brief description about the course** In this course you can delve into any of the topics Mentioned in the area of Graphics Computing (Graphics and Visual Computing - GV).

This course is designed to perform some advanced course suggested by the ACM / IEEE curriculum. [Hug+13; HB90]

(b) **Prerequisites:** CS251. Computación Gráfica. (7^{mo} Sem)

(c) **Type of Course:** Elective

7. Competences

- That the student uses computer techniques Graphs that involve complex data structures and algorithms.
- That the student apply the concepts learned to create an application about a real problem.
- That the student investigate the possibility of creating a new algorithm and / or new technique to solve a real problem

8. Contribution to Outcomes

a) An ability to apply knowledge of mathematics, science. (**Usage**)

b) An ability to design and conduct experiments, as well as to analyze and interpret data. (**Usage**)

i) An ability to use the techniques, skills, and modern computing tools necessary for computing practice. (**Usage**)

j) Apply the mathematical basis, principles of algorithms and the theory of Computer Science in the modeling and design of computational systems in such a way as to demonstrate understanding of the equilibrium points involved in the chosen option. (**Usage**)

9. Competences (IEEE)

C1. An intellectual understanding and the ability to apply mathematical foundations and computer science theory.⇒ **Outcome a,b**

C24. Understanding the need for lifelong learning and improving skills and abilities.⇒ **Outcome i,j**

10. List of topics

1. Advanced Topics on Computer Graphics

11. Methodology and Evaluation

Methodology:

Theory Sessions:

The development of the theoretical sessions is focused on the student, through his active participation, solving problems related to the course with the individual contributions and discussing real cases of the industry. The students will develop throughout the course a project of application of the tools received in a company.

Lab Sessions:

Practical sessions are held in the laboratory. Laboratory practices are performed in teams to strengthen their communication. At the beginning of each laboratory the development of the practice is explained and at the end the main conclusions of the activity in group form are highlighted.

Oral Presentations :

Individual and team participation is encouraged to present their ideas, motivating them with additional points in the different stages of the course evaluation.

Reading:

Throughout the course different readings are provided, which are evaluated. The average of the notes in the readings is considered as the mark of a qualified practice. The use of the UTEC Online virtual campus allows each student to access the course information, and interact outside the classroom with the teacher and with the other students.

Evaluation System:

12. Content

Unit 1: Advanced Topics on Computer Graphics (0)	
Competences Expected: 4	
Learning Outcomes	Topics
<ul style="list-style-type: none">• Advanced Topics on Computer Graphics	<ul style="list-style-type: none">• CS355. Advanced Computer Graphics• CS356. Computer animation• CS313. Geometric Algorithms• CS357. visualization• CS358. Virtual reality• CS359. Genetic algorithms
Readings : [Soars022S], [Soars022W], [Soars022T], [Cambridge06], [MacGrew99]	