University of Engineering and Technology
School of Computer Science
Syllabus of Course
Academic Period 2018-II

1. **Code and Name:** CS3501. Topics in Computer Graphics
2. **Credits:** 4
3. **Hours of theory and Lab:** 2 HT; 4 HL;
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:** CS2501. Computer graphics . (7th Sem)

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

    (d) **Modality:** Face to face

7. **Specific goals of the Course**

    - 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**)

    l) Develop principles research in the area of computing with levels of international competitiveness. (**Usage**)

    m) Transform your knowledge of the area of Computer Science into technological enterprises. (**Usage**)

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9. **Competences (IEEE)**

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

C20. Ability to connect theory and skills learned in academia to real-world occurrences explaining their relevance and utility.⇒ **Outcome l,m**

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10. List of topics

1. Advanced Topics on Computer Graphics

11. Methodology and Evaluation
Methodology:

Theory Sessions:
The theory sessions are held in master classes with activities including active learning and roleplay to allow students to internalize the concepts.

Lab Sessions:
In order to verify their competences, several activities including active learning and roleplay will be developed during lab sessions.

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**
• Advanced Topics on Computer Graphics	• CS355. Advanced Computer Graphics • CS356. Computer animation • CS313. Geometric Algorithms • CS357. visualization • CS358. Virtual reality • CS359. Genetic algorithms
Readings : [Soars022S], [Soars022W], [Soars022T], [Cambridge06], [MacGrew99]	