

Mathematics

Linear algebra and image synthesis

IDENTIFICATION

CODE : IFA-3-S2-EC-CMSI
ECTS : 2.0

HOURS

Lectures : 10.0 h
Seminars : 4.0 h
Laboratory : 20.0 h
Project : 0.0 h
Teacher-student
contact : 34.0 h
Personal work : 20.0 h
Total : 54.0 h

ASSESSMENT METHOD

Practical work : oral examination (2
students)
Written exam : 1h30

TEACHING AIDS

TEACHING LANGUAGE

French

CONTACT

M. BRES Stephane
stephane.bres@insa-lyon.fr
M. DORT Leo
leo.dort@insa-lyon.fr
M. GUERIN Eric
eric.guerin@insa-lyon.fr

AIMS

The goal of this course is to improve the competences in methods of modelling and resolution of problems expressed using matrix. Besides, this set of course is the occasion to discover MATLAB and the possibilities that it offers in this domain.

CONTENT

- A. TODO : partie calcul matriciel
- B. Image synthesis
 1. Image synthesis pipeline
 2. 3D transformations
 3. Geometric modeling (explicit, implicit and iterative)
 4. Display
 5. Illumination models
 6. Procedural generation

PRE-REQUISITE

Classical linear algebra notions : determinant, eigenvectors and eigenvalues, basis ...