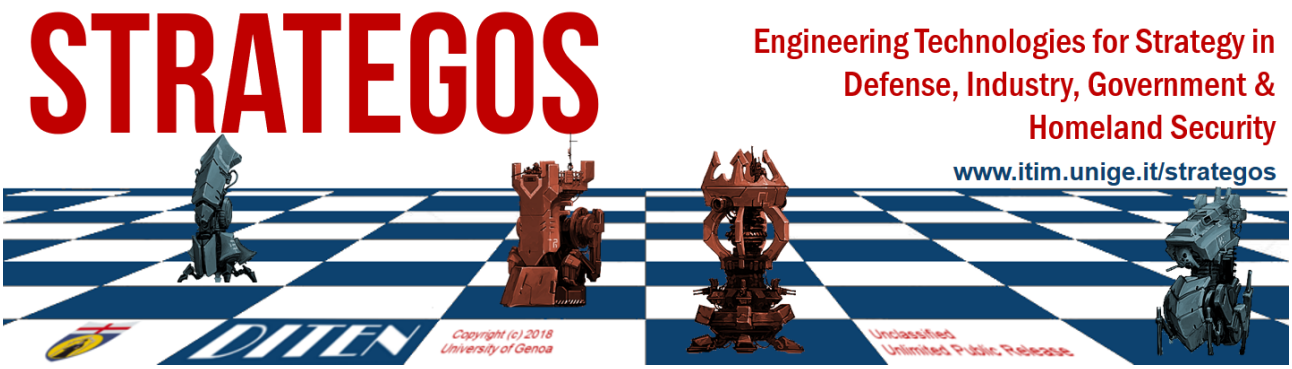


STRATEGOS

Master of Science on Engineering Technologies for Strategy and Security,

Modelling, Simulation, Data Analysis, AI/IA for Strategies on Operations and Systems

Course: Computer Games & Simulation

SSD ING-INF/01

Credits: ***5***

Schedule & Timetable:

Schedule 2nd Year, 1st Semester

Teachers, Email, URL:

- **Alessandro De Gloria, adg@elios.unige.it**
  phd-jdice.diten.unige.it/index.php/team/item/36-alessandro-de-gloria

Assistants for Exercises & Simulation Lab Experience:

TBF

Education Objectives:

This Course proposes Games use in a wide spectrum of applications. Serious Games and Strategy Games are addressed as well as the critical principle for designing solutions able to engage and be effective on the users.

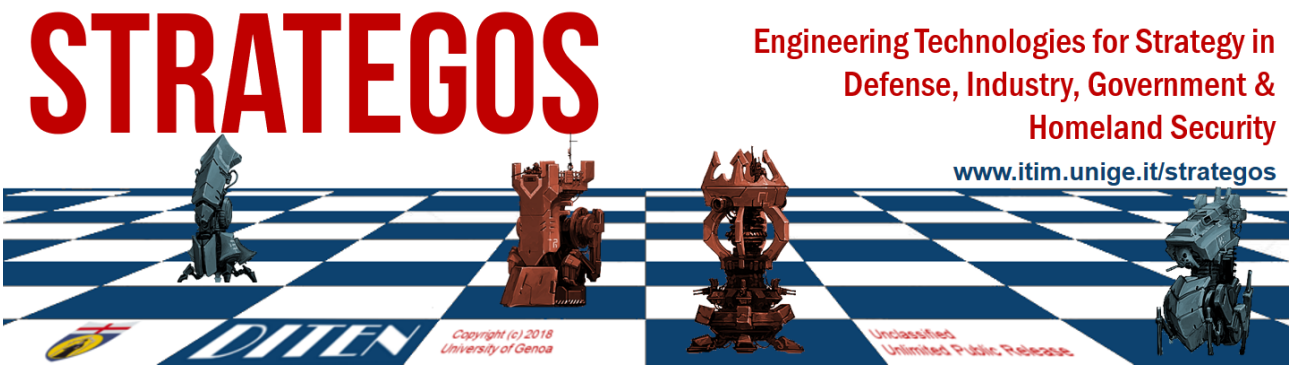
In facts Serious Games are emergent kinds of games that are not devoted just to entertain, but that have as main purpose educational, training, awareness raising, advertisement or other “serious” purposes based on intensive engagement of the “player”.

The course describes the theory of games, pre-production techniques, engagement methods and storytelling, visual design principles, level design and coding approaches and architectures .

The course presents the whole game life cycle and provides also practical hands-on work and experiences in game design and front-end interfaces development

Multiplayer and distributed games are proposed for different applications as well as examples of video games

The course allow students to experience directly on exercises and case studies the whole process of development and evaluation of a Serious Game or War Game.



Course Program & Elements:

- **The World of Games**
  - Games and Artificial Intelligence
  - Traditional Games
  - Deep Blue, Chess, Go and Strategic Applications of AI in Games
  - Real Time Games
  - Dynamics in Games
  - Incomplete Knowledge in Games
  - Resources in Games
  - Commercial Use of Games
  - Serious Games for educational, training, awareness raising, advertisement
  - War Games
  - Examples of Games and Experiences on different application fields

- **Creating Games**
  - *Designing New Games*
  - *Single Player Games, Multiplayer Games, Distributed Games, Massive Multiplayer On Line Game, Term*
  - *Identification of User Needs and Expectations*
  - *Engagement Criteria, Engagement Methodologies, Metrics and Testing Modes*
  - *Effects of Games on Player Behaviors*
  - *Innovative methods for game interactions and Games interfaces*
  - *Game telemetry & metrics*
  - *AI techniques and "big data" collected by Games*
  - *Game production cycle: Idealize, design, develop, test and deliver a serious game*
  - *Serious Game Development*
  - *Direct Experiences on Serious Games Development*
  - *Evaluation techniques for games research*

Teaching Approach:

Frontal Lectures and Exercises in class.

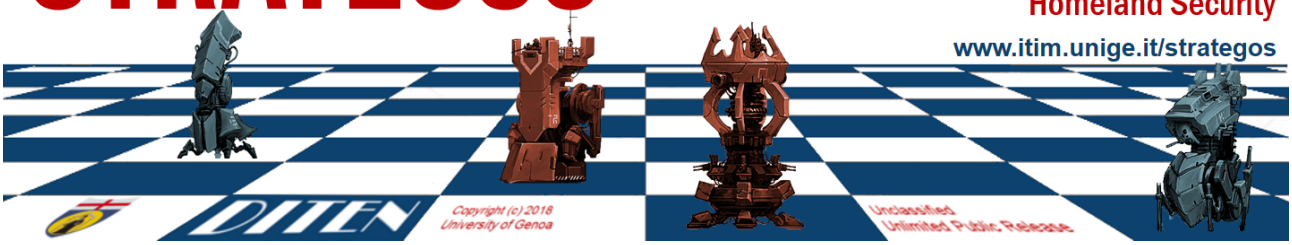
Evaluation and Final Exam:

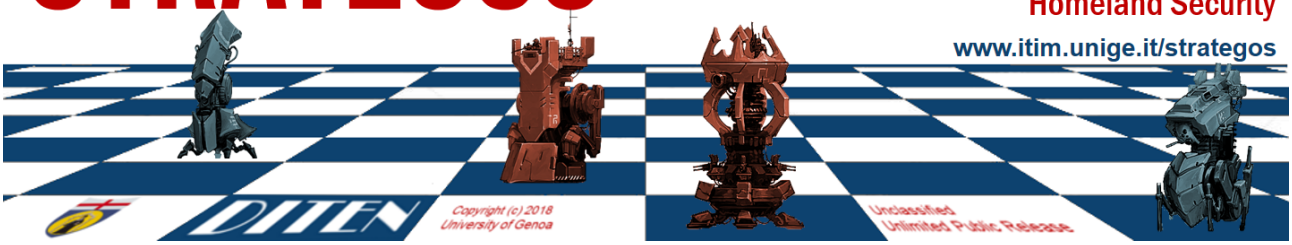
Final Exam will be carried out by Teacher

STRATEGOS

Engineering Technologies for Strategy in Defense, Industry, Government & Homeland Security

www.itim.unige.it/strategos





Time Zone:

Italy (CET), GMT+1

Prerequisites:

The Course does not require specific prerequisites.

References

- De Gloria, A., Bellotti, F., & Berta, R. (2014). Serious Games for education and training. International Journal of Serious Games, 1(1).
- Dörner, R., Göbel, S., Effelsberg, W., & Wiemeyer, J. (2016). Serious Games. Springer International Publishing.
- Oriesek, D. F., & Schwarz, J. O. (2016). Business wargaming: securing corporate value. Routledge.
- Cruickshank, D. R., & Telfer, R. (1980). Classroom games and simulations. Theory into practice, 19(1), 75-80.

Others References

- Arnab, S., Lim, T., Carvalho, M. B., Bellotti, F., De Freitas, S., Louchart, S., ... & De Gloria, A. (2015). Mapping learning and game mechanics for serious games analysis. British Journal of Educational Technology, 46(2), 391-411.
- Bellotti, F., Berta, R., & De Gloria, A. (2010). Designing effective serious games: opportunities and challenges for research. International Journal of Emerging Technologies in Learning (iJET), 5(2010).