General Information	
Academic subject	Physics
Degree course	Bachelor programme: Food Science and Technology
ECTS credits	6 ECTS
Compulsory attendance	No
Teaching language	Italian

Subject teacher	Name Surname	Mail address	SSD
	Sabina Tangaro	sabina.tangaro@uniba.it	FIS/07

ECTS credits details		
Basic teaching activities	4 ECTS Lectures	2 ECTS Practical

Class schedule	
Period	I semester
Course year	First
Type of class	Lecture – Practical

Time management	
Hours	150
In-class study hours	60
Out-of-class study hours	90

Academic calendar	
Class begins	October 12th, 2020
Class ends	January 22th, 2021

Syllabus	
Prerequisites/requirements	
Expected learning outcomes	*Knowledge and understanding* ○ Knowledge of the main theoretical models of physics and the hypotheses on which these models are founded. Acquisition of the principles of mechanics of solids and liquids, of thermodynamics. *Applying knowledge and understanding* ○ Developing the ability to apply what has been learned to real cases *Making informed judgements and choices* ○ Ability to deviate from superficial knowledge so to be able to independently reason in order to attempt at the solution of non-standard problems *Communicating knowledge and understanding* ○ Ability to express themselves in a clear and scientifically rigorous language *Capacities to continue learning* ○ Learning the basics and consolidation of logical and scientific attitudes useful in following years studies. The expected learning outcomes, in terms of both knowledge and skills, are provided in Annex A of the Academic Regulations of the Degree in Food Science and Technology (expressed through the European Descriptors of the qualification)
Contents	Generality Physical dimensions and measurement. Dimensions, Measurement systems. Scalar and vectorial dimensions. Geometrical and cartesian representation of vectors. Calculation on vectors: addition, difference, product with a scalar, scalar product, vectorial product.

	Kinematics Definition of mass point. Frames of reference. Average and instantaneous speed. Average and instantaneous acceleration. Cartesian representation. Space-time laws. Straight line motions. Motion of falling objects. Planar motion: motion, velocity and acceleration. Bullet motion. Uniform circular motion. Dynamics Forces and mass. The three Newton's laws. Weight. Friction (static and kinetic). Hooke's law forces. Dynamics of uniform circular motion: inward force. Force work: the case of a constant and a varying force. Kinetic energy. Work and energy theorem. Conservative forces and potential energy. Conservation of mechanical energy. Power. Momentum of a force and elements of rigid body dynamics. Statics: conditions of equilibrium and leverages Calorimetry and thermodynamics Temperature and heat. Ideal gas and state equations: thermodynamic transf. Thermodynamics laws, thermal machine Fluid statics and dynamics
Course program	
Reference books	D. Halliday, R. Resnick, J. Walker, "Fondamenti di Fisica", Casa Editrice Ambrosiana, 2015
Notes	Lesson notes integrate the contents of bibliography
Teaching methods	Lectures will be held using PowerPoint slide shows and exercises using the blackboard with involvement of the students Lecture notes and educational supplies will be provided by means of a mailing list or online platforms (i.e.: Edmodo, Google Drive…)
Evaluation methods	The exam consists of an oral dissertation on the topics developed during the theoretical and theoretical-practical lectures in the classroom and in the laboratory/production plants, as reported in the Academic Regulations for the Bachelor Degree in Food Science and Technology (article 9) and in the study plan (Annex A). Students attending at the lectures may have a middle-term preliminary exam, consisting of a written test, relative to the first part of the program, which will concur to the final evaluation and will be considered valid for a year. The evaluation of the preparation of the student occurs on the basis of established criteria, as detailed in Annex B of the Academic Regulations for the Bachelor Degree in Food Science and Technology. Non-Italian students may be examined in English language, according to the aforesaid procedures.
Evaluation criteria	*Knowledge and understanding* ○ The student must demonstrate knowledge of the main theoretical models of physics in relation to the subjects dealt with during the lessons *Applying knowledge and understanding* ○ The student must be able to solve simple physical problems based on the acquired knowledge *Making informed judgements and choices* ○ The student must demonstrate that he / she is able to follow alternative explanatory pathways to standardized models *Communicating knowledge and understanding* ○ The student must demonstrate sufficient mastery of reference scientific terminology *Capacities to continue learning*

	○ The student will be able to independently examine and deepen problems in which the use of the laws of physics is required
Receiving times	Monday-Friday by appointment email