lphys2233c

2024

Experimental methods in fundamental physics - Data analysis methods

5.00 credits	27.5 h + 2.5 h	Q2

Teacher(s)	Bethani Agni (compensates Cortina Gil Eduardo) ;Bruno Giacomo ;Cortina Gil Eduardo ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	Having followed LPHYS2102 is an asset
Main themes	Triggering, data acquisition and computing systems - Data treatment algorithms - Advanced statistics - Software tools for data treatment and simulation in fundamental physics.
Learning outcomes	
Evaluation methods	Evaluation of a report written by the student on a project concerning either the simulation of the particle propagation in matter or a statistical analysis of data resulting from an experiment in physics. Evaluation of an oral interrogation on the project and the subjects treated in the teaching unit.
Teaching methods	- Lectures in auditorium. - Resolution of problems in auditorium. - Personal software project and report writing.
Content	9. Trigger and data acquisition systems. 10. Offline data processing systems. 11. Event reconstruction algorithms in particle physics. a. Tracking, b. Vertexing. c. Clustering. d. Jets 12. Calibration and alignment techniques. 13. Introduction to data analysis methods used in gravitational wave physics 14. Statistical methods of data analysis. 15. Simulation of particle propagation in matter. 16. Project concerning either the simulation of particle propagation in matter or a statistical analysis of data from a physics experiment.
Bibliography	G. Cowan, “Statistical Data Analysis”, Oxford Science Publications.
Other infos	This partim counts for 5 credits and can be taken separately from the full course
Faculty or entity in charge	PHYS

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Physics	PHYS2M	5		🔍