ANGP211 – MAJOR PROJECT DE PROGRAMMING

OBJECTIVES IN TERMS OF LEARNING OUTCOMES	At the end of this course, the student must: • Master the development of a program as part of a team and its presentation. • Design, model, and produce a program, organize team work, plan tasks, explain the role of external sources (modules, libraries, generative AI), and present their work using diagrams and/or schematics, as well as providing a summary. • Be able to assess and present the progress and quality of a program using objective elements or measures (qualitative or quantitative).
ESSENTIAL ELEMENTS OF ENGINEERING EDUCATION	**E1 à E3, E9**
RELATED PROFESSIONAL SKILLS	B1-1 à B1-6, B1-9 B5-1 à B5-3 B10-4 à B10-7
POTENTIAL AREAS OF CONTRIBUTION OF THE MODULE TO SUSTAINABLE DEVELOPMENT :	
TEACHINGS LEVEL :	**Niveau 1**
HOURS ALLOCATED :	18 heures
• Course: • Practical work : • Projects :	0 heures 0 heures 18 heures
• Controls :	0 h
SPECIAL RESOURCES :	- Personal computers equipped with a text editor and a Python interpreter.

TEACHING UNIT:	**TYPE OF ASSESSMENTS :**	Number of tests by type	Coefficients in the ECUE of the whole Tests by type
UE PAS 11	• Oral (15min)	1	1/2
	• Project reports	1	1/2
PROFESSORS :	SITE IVRY : M. AMIR MOAZAMI, G. PALACIOS SITE TOULOUSE :		
PREREQUISITES:	Basic concepts of python programming (IN111-IN121-IN211)		
DOCUMENTS AND OTHER DIGITAL MEDIA:	Course documents : Teaching materials for Python programming courses IN111, IN121 et IN211 - course and practical work subject : https://moodle.ipsa.fr - Documentation Python: https://docs.python.org/3		

BIBLIOGRAPHY :	*Benjamin Wack, Sylvain Conchon, Judicaël Courant, Marc de Falco, Gilles Dowek, Jean-Christophe Filliâtre, Stéphane Gonnord - Informatique pour tous en classes préparatoires aux grandes écoles - Manuel d'algorithmique et programmation structurée avec Python - Nouveaux programmes 2013 - Voies MP, PC, PSI, PT, TPC et TSI, Eyrolles.*
CONCERNED PUBLIC	Common core 1st year of the preparatory cycle wishing to continue in the system sector.

DATE OF LAST UPDATE:	16 September 2023	**NAME OF WRITING PERSON(S)**	**F. BONNEFOI**

An**Gp211** PROGRAM

Sessions n°	Purpose of the course
1 (2h)	**Session n°1 :** • Presentation of objectives and session planning • Presentation of the program presentation plan - Title – Problematic and objectives – Presentation of the work – Detail 1 – Detail 2 – Summary – Sources • Reminder on presentation constraints: Duration, summary of algorithms with diagrams (UML classes and activities), project measurement elements. • Formation of groups (2 students) • Project topic proposal • Initial planning: the main steps of implementation
2 (4h)	**Session n°2 :** • Final selection of the project topic • Start of development and modeling with UML activity diagrams • Design of the evaluation method for the system and quality indicators
3 (4h)	**Session n°3 :** • Development of the algorithm/program and model sequences • Initial quality measurements
4 (4h)	**Session n°4 :** • End of development • System evaluation – review of the activity diagram(s) and/or UML classes • First version of the report and presentation of the work
5 (4h)	**Session n°5 :** Project presentation and demonstration - 10-minute presentation + 10 minutes for questions/answers per group