ENSSAT LANNION

COMPUTER SCIENCE: EXCHANGE STUDENT / SPRING SEMESTER S4

MODULES	**TITLE**	**ECTS**	
HUMANITIES	FRENCH AS A FOREIGN LANGUAGE	2	P2
	PHYSICAL EDUCATION	2	P3
	ENGLISH	2	P4
TECHNICAL	INTRODUCTION TO ARTIFICIAL INTELLIGENCE	4	P5
	LANGUAGE THEORY AND COMPILERS ARCHITECTURE	4	P6
	CLIENT SIDE/SERVER SIDE WEB PROGRAMMING	2	P7
	WEB SERVICES	3	P8
	ADVANCED ALGORITHMICS	3	P9
PROJECTS		8	P10
		30	

❒1st / ☑2nd/❒3rd year / COMPUTER SCIENCE

Module title : French for foreigners

Module leader: Nathalie Caradec Nathalie.caradec@enssat.fr

Type of module
Compulsory module
Prerequisite: placement test for level group

Duration of module : 30h

Module components /Types of Courses

- Practical courses in small group

Dialogues- role play –variety of teaching material through the media and digital technology

ECTS: 2

Work load: In class studying

Content:
CEFR French levels are used on the four skills speaking – listening-reading and writing

- Level A1-A2

can introduce him/herself, can ask and answer questions about personal details such as where he/she lives, people he/ she knows, and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly.

- Level B1-B2

Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes & ambitions and briefly give reasons and explanations for opinions and plans.

Common European Framework of References : CECRL (Cadre Européen Commun de Références pour les Langues)

Learning outcomes:

Development of the different skills according to the level.

Assessment
- Written assignment
- Oral assignment

Language of instruction: French

Additional information

❒1st / ☑2nd/❒3rd year / COMPUTER SCIENCE

Module title	PHYSICAL EDUCATION
Module leader	Mr. Bertrand LEFEBVRE Bertrand.lefebvre@enssat.fr
Type of module (compulsory module, required Elective module, elective module)	Compulsory
Duration of module	30 hours
Module components /Types of Courses (lectures, practical course, lab, tutorial, internship, …)	
Coefficient …….	part of a Unit with **2** ECTS
Work load	Not requested
Content	TENNIS OR WINDSURFING
Learning outcomes	- Health and safety - Team spirit - Local sport activities
Assessment	- Written assignment: A final report to be handed in. - Oral assignment
Language of instruction	ENGLISH/FRENCH
Additional information: swimming skills are mandatory for water sports.	

☑2nd/❒3rd year / COMPUTER SCIENCE

Module title	GENERAL ENGLISH COURSES
Module leader	Claire LE PAGE claire.le-page@enssat.fr
Type of module (compulsory module, required Elective module, elective module)	COMPULSORY
Duration of module	30 HOURS
Module components /Types of Courses (lectures, practical course, Practical courses in small groups lab, tutorial, internship, …)	
Coefficient 2	part of a Unit with 6 ECTS
Work load	-In class studying 30 hours -Student managed learning: 20 hours

Content

This course is designed to teach students at an "independent level" to communicate effectively in English at the B2 /C1 level on general topics.

Learning outcomes:

At the end of this course students will be able to

- Do presentations
- Debate on topical issues
- Interact with a degree of fluency which makes communication with a native speaker possible
- Write reports on a wide range of interests.
- Understand the main ideas of complex texts on concrete or abstract topics
- Understand extended speech or conferences

Assessment: continuous assessment

- Written assignment ☑
- Oral assignment ☑

Language of instruction

ENGLISH

Additional information: B1 level is a prerequisite

ENSSAT LANNION

❒1st / ☑2nd/❒3rd year / COMPUTER SCIENCE

Module title Introduction to Artificial Intelligence
Module leader Gwénolé Lecorvé gwenole.lecorve@enssat.fr
Type of module compulsory module
Duration of module 30 hours
Module components /Types of Courses - lectures: 12 hours - practical course: 8 hours - lab: 10 hours
Coefficient 1/3 part of a Unit with 8 ECTS
Work load - In class studying: 30 hours - Student managed learning: 20 hours
Content - Search in discrete spaces - Game theory - Machine learning
Learning outcomes - Identify situations an instances of known problems - Formalize situations as known problems - Run space exploration algorithms - Train machine learning - Analyze the performance of exploration algorithms - Analyse the performance of machine learning models
Assessment - Written assignment - Project assignment
Language of instruction ENGLISH
Additional information

❒1st / ☑2nd/❒3rd year / COMPUTER SCIENCE

Module title Language theory and compilers architecture
Module leader Damien Lolive Damien.lolive@enssat.fr
Type of module (compulsory module, required Elective module, elective module) Compulsory module
Duration of module 60h
Module components /Types of Courses (lectures, practical course, lab, tutorial, internship, …) Lectures (30h) Project (30h)
Coefficient ……. part of a Unit with ……ECTS
Work load - In class studying 60h - Student managed learning 60h
Content Introduction Language theory - Rational languages, Finite State Automaton - Grammars, Context-free languages - Context-free grammars normalization Syntactical analysis - Context-free grammars parsing - Ascending and descending analysis - LL parsers, CYK algorithm Compilers architecture - Algorithmic, procedural and object languages - Elements of optimization
Learning outcomes The objective is to have the key element enabling the construction of compilers. After the course, students are able to understand how languages work, how compilers are built, and are able to design compilers for specific cases.
Assessment - Written assignment - Oral assignment
Language of instruction ENGLISH
Additional information

❒1st / ☑2nd/❒3rd year / COMPUTER SCIENCE

Module title Client Side / Server Side Web Programming
Module leader Vincent Barreaud Vincent.barreaud@enssat.fr
Type of module (compulsory module, required Elective module, elective module) Compulsory module
Duration of module 36h
Module components /Types of Courses (lectures, practical course, lab, tutorial, internship, …) Lectures (8h) Lab (32h)
2 ECTS part of a Unit with 16 ECTS
Work load - In class studying 40h - Student managed learning 27h
Content In this course, the main technologies used in web programming will be presented (HTTP, HTML5, CSS3, ES6, PHP7) with a historical approach. Students will then explore web programming on the client side (WEB API) and on the server side (NodeJS).
Learning outcomes The main goal of this course is to give the students the opportunity to deal with the web interface, the application core and main web development tools. At the end of this course, the student should • implement a static web site hosted on an Apache server • implement a dynamic web site with JavaScript • implement a web application with PHP • implement a web application with NodeJS
Assessment - Written assignment - Lab report - Oral assessment + Lab demo
Language of instruction ENGLISH
Additional information

❒1st / ☑2nd/❒3rd year / COMPUTER SCIENCE

Module title Web services
Module leader Vincent Barreaud Vincent.barreaud@enssat.fr
Type of module (compulsory module, required Elective module, elective module) Compulsory module
Duration of module 30h
Module components /Types of Courses (lectures, practical course, lab, tutorial, internship, …) Lectures (14h) Lab (16h)
3 ECTS part of a Unit with 16 ECTS
Work load - In class studying 30h - Student managed learning 20h
Content This course focuses on Service Oriented Architectures and Service Oriented Programing. Two main Architectures will be developed: SOAP Architectures and REST Architecture. The main programing language used is JavaScript on NodeJS servers, JEE and PHP.
Learning outcomes At the end of this course, the student will be able to : • Describe what a SOAP based architecture is. • Describe what a REST architecture is. • Choose the architecture accordingly to the given specifications • Implement the given architecture on NodeJS or in JEE
Assessment - Written assignment - Lab reports
Language of instruction ENGLISH
Additional information

❒1st / ☑2nd/❒3rd year / COMPUTER SCIENCE

Module title Advanced Algorithmics
Module leader Olivier Pivert - olivier.pivert@enssat.fr
Type of module (compulsory module, required Elective module, elective module) Compulsory module
Duration of module 36h
Module components /Types of Courses (lectures, practical course, lab, tutorial, internship, …) Lectures (14h) Exercises (14h) Project (8h)
3 ECTS part of a Unit with 16 ECTS
Work load - In class studying 36h - Student managed learning 20h
Content Introduction Reminder about computational complexity Divide and Conquer Trials and errors Dynamic programming Greedy algorithms
Learning outcomes The objective is to master different classical algorithmic methods, whose list is given above. A particular attention will be paid to the computational complexity aspect.
Assessment - Written assignment X - Oral assignment
Language of instruction ENGLISH
Additional information

❒1st / ☑2nd/❒3rd year / COMPUTER SCIENCE

Module title Technical Project
Module leader Damien Lolive damien.lolive@enssat.fr
Type of module Compulsory module, required
Duration of module 50 hours
Module components /Types of Courses (lectures, practical course, lab, tutorial, internship, …) Lab (project)
Coefficient 1 part of a Unit with 8 ECTS
Work load -In class studying: 50h -Student managed learning: 100h
Content The technical project aims to be a multidisciplinary project for which the subject is proposed by a teacher at Enssat.
Learning outcomes
Assessment Project (Report + Demonstration + Oral presentation)
Language of instruction French or English
Additional information