

Ecosystème de micro-contenus réutilisables en ligne pour Moodle

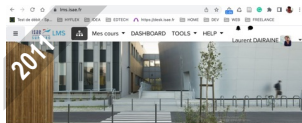
Laurent DAIRAINÉ, Anne-Lise LUGA, Bruno ILPONSE
Equipe IDEA – ISAE-SUPAERO



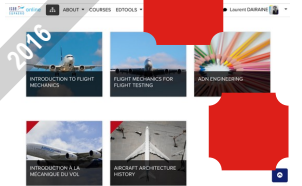
Situation à l'ISAE-SUPAERO



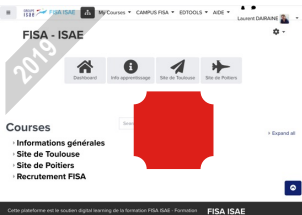
Formations Campus



Formation continue



Formation par apprentissage



2015 MOOC Avion
Comment vole un avion ?

https://online.isae-supaero.fr/mooc-avion

Découvrez comment les avions volent et explorez la mécanique du vol, du décollage à l'atterrissage.

2021 Flight Mechanics
The basis

https://online.isae-supaero.fr/fm-the-basis

A course to discover how airplanes fly and explore the basis of flight mechanics.

2021 Flight Mechanics
Anemobarometry

https://online.isae-supaero.fr/fm-anemobarometry

Discover the physics of the atmosphere and its consequences on speed and altitude measurements.

2021 Flight Mechanics
Lift and trajectory

https://online.isae-supaero.fr/fm-lift-and-trajectory

Understand the influence of the angle of attack and speed on the lift, hazards and limitations, like stall, spiral dive or flutter

2021 Flight Mechanics
Propulsive balance and energy

https://online.isae-supaero.fr/fm-propulsive-balance-and-energy

This course is dedicated to energy management : speed an altitude control.

2021 Structural dynamics
Foundations

https://online.isae-supaero.fr/sd-foundation

Discover the concepts of static, dynamic, and thermodynamic approaches, followed by the analytical Newtonian foundations of discrete dynamics.

2021 Structural dynamics
Developments

https://online.isae-supaero.fr/sd-developments

This course is devoted to the dynamic implementation of continuous structural elements vs discrete models of discrete dynamics.

2022 NewSpace Access
Think of space differently

https://online.isae-supaero.fr/ns-access

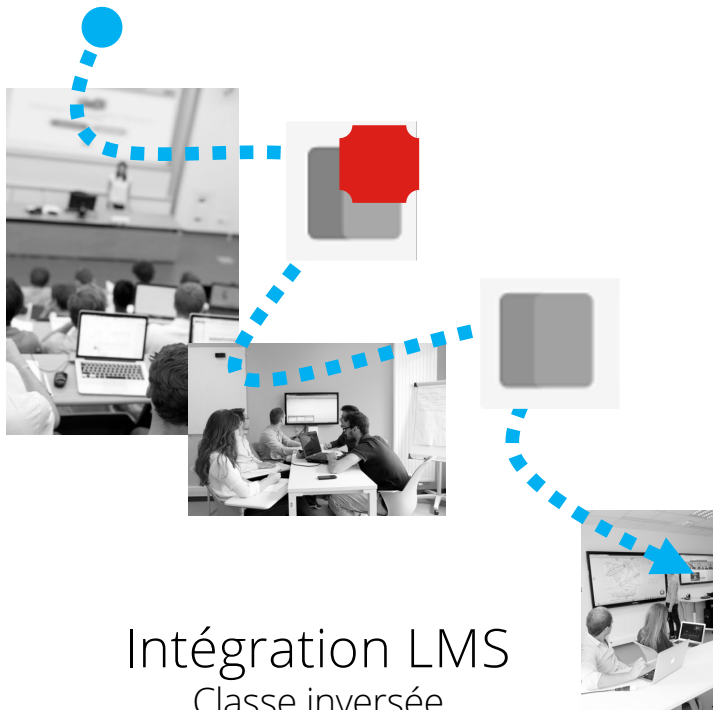
Combine the new technologies and management of space access with the classical paradigm of the existing space context.



Formation à distance et MOOC

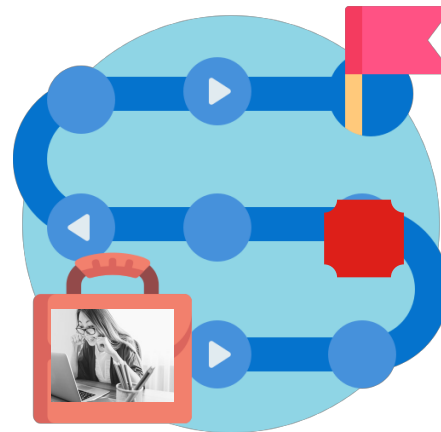
Différents programmes, différentes modalités

Formation campus



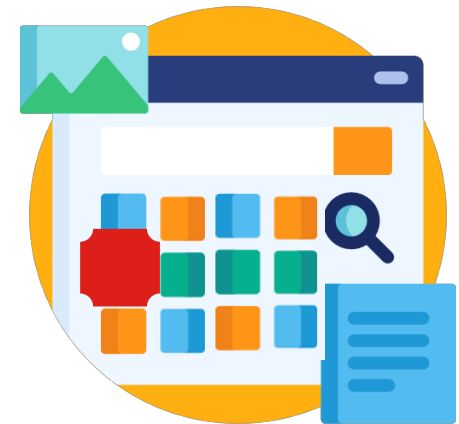
Intégration LMS
Classe inversée

Formation à distance



Plateforme digital learning
Chemin d'apprentissage structuré

Formation personnalisée



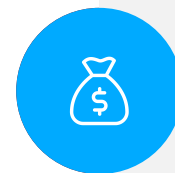
Micro-learning
Accès direct au savoir

Inciter à la transformation numérique & enseignements



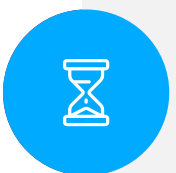
Susciter l'usage du numérique dans l'enseignement

- Inciter à l'hybridation des cours
- Accélérer la production « agile » de formations
- Capitaliser les contenus numériques
- Faciliter l'intégration



Donner de la valeur à la production numérique pédagogique

- Motiver l'investissement (en temps) de l'enseignant
- Faciliter les usages des contenus
- Faciliter la maintenance des contenus
- Faciliter la coopération entre établissement
- Mutualiser les coûts techniques



Sécuriser les auteurs et leur établissement producteur

- Permettre une maîtrise de l'espace de diffusion des contenus
- Permettre l'accès ouvert ou la diffusion sélective
- Accompagner la gestion des licences



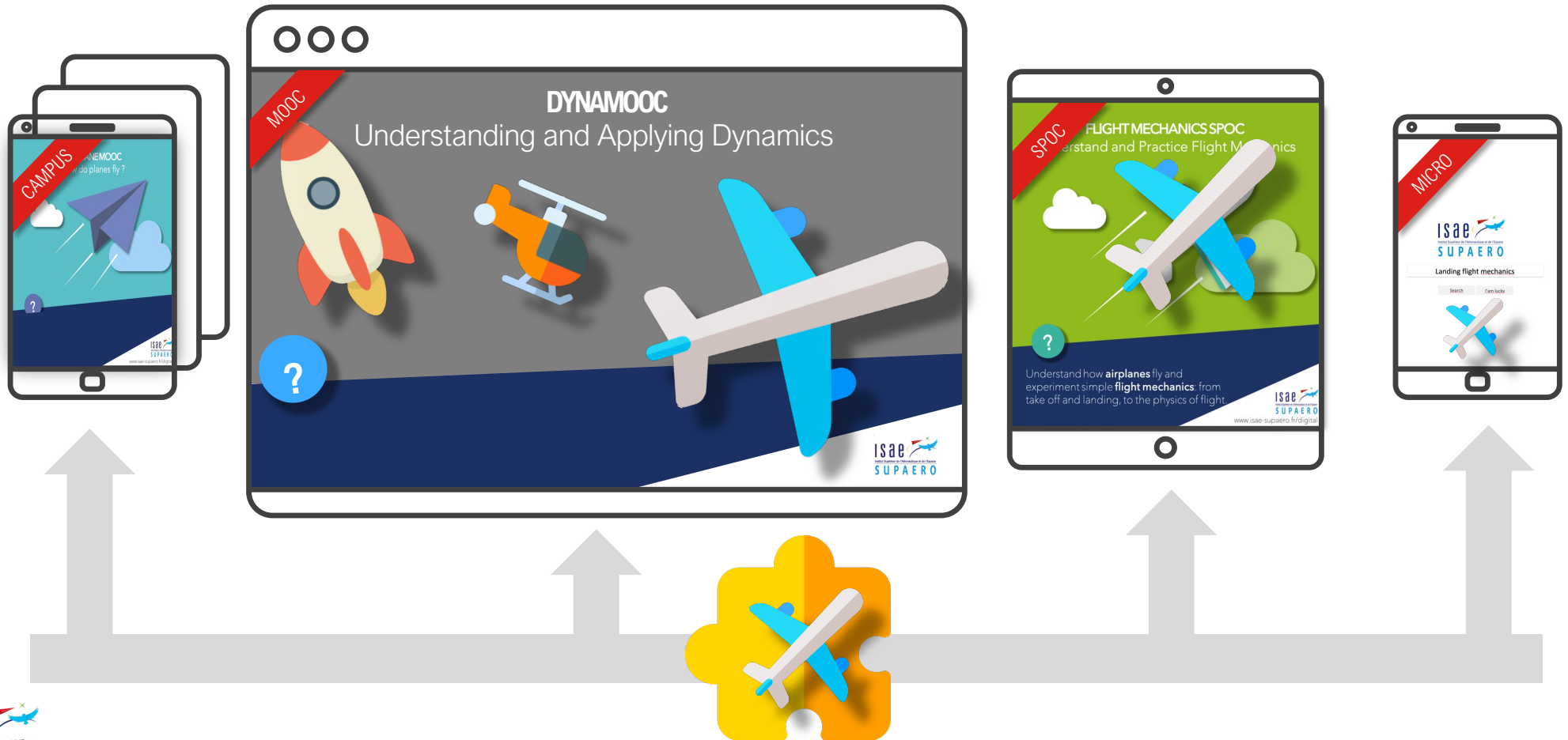
S'inscrire dans une démarche innovante

- Permettre aux parties prenantes l'exploitation des traces
- Permettre la formation adaptative
- Rendre possible un modèle économique autour des contenus

Contexte : différents dispositifs de formation



Nourrir les dispositifs de formation avec des “micro-cours” en ligne réutilisables



Micro-cours :
« ADN - Aerospace Digital Nugget »

01

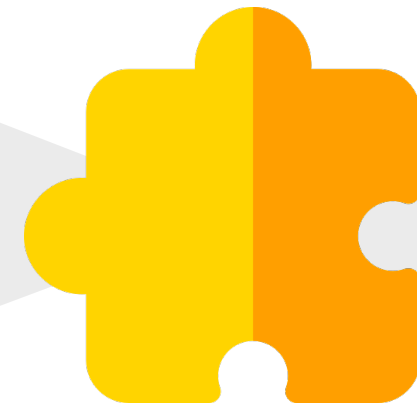


Un micro-cours abordant une notion en moins de 30min

02



*Une ressource qui se prête à la réutilisation :
« décontextualisée »*



« Nugget »

03



Multimédia, interactif, responsif

04



Une ressource enrichie de métadonnées et de qualité

Que trouve t on à l'intérieur d'un Nugget ?

LEÇON, DEMO, TUTO, ...



Digital Nugget (H5P)



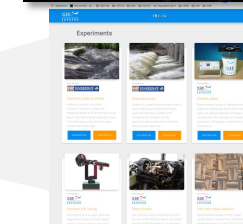
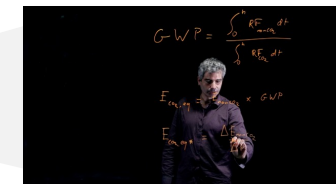
Apport théorique
Video, text, slides, etc.



Exercice pratique
(if applicable) Simulator, remote experiment, exercise,
calculation...



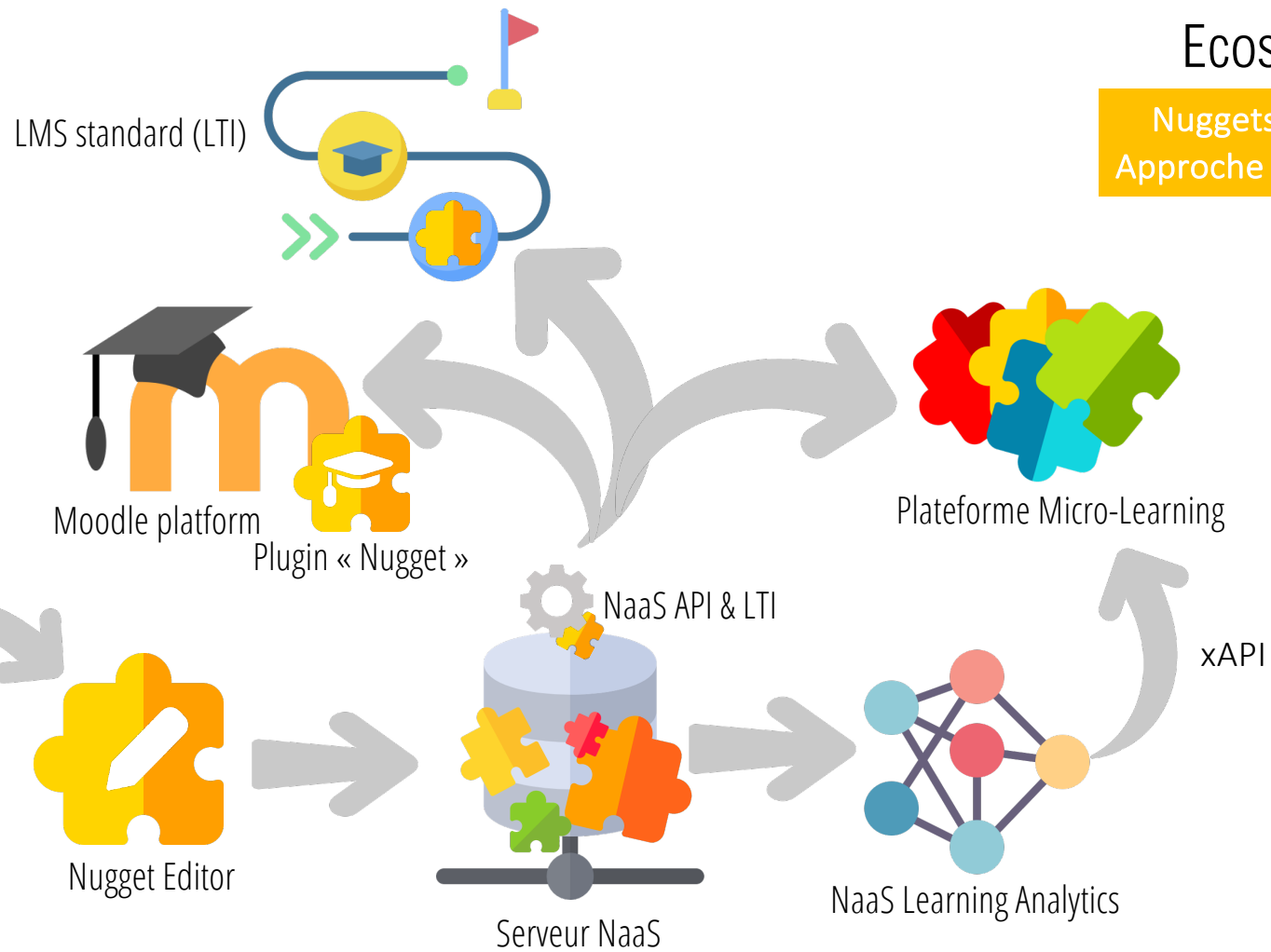
Evaluation formative
Quiz, calculation, fill in the blank, etc.



<https://ireal.isae-supero.fr>

Ecosystème NaaS

Nuggets as a Service :
Approche orientée service



Méthodologie

Plateforme de micro-learning



Rapid learning

Direct access to ADN, that stands for "Aerospace Digital Nuggets", focused, short and effective micro-contents designed by our best specialists.



Powerful Search engine

A high performance search engine allow to quickly find the best ADN micro-content to reply to your needs.



Mobile friendly

Access to the platform and its ADN micro-contents from any device : computer, laptop, tablet or mobile.



ADN selections

MICROLEARNING proposes various static and dynamic selections of ADN micro-contents to suggest the best knowledge to learn.



Learner engagements

Formative interactions are integrated into the nuggets to increase motivation



Reinforce knowledge

Review concept regularly the concepts to reinforces the knowledge



Measure proficiency (soon)

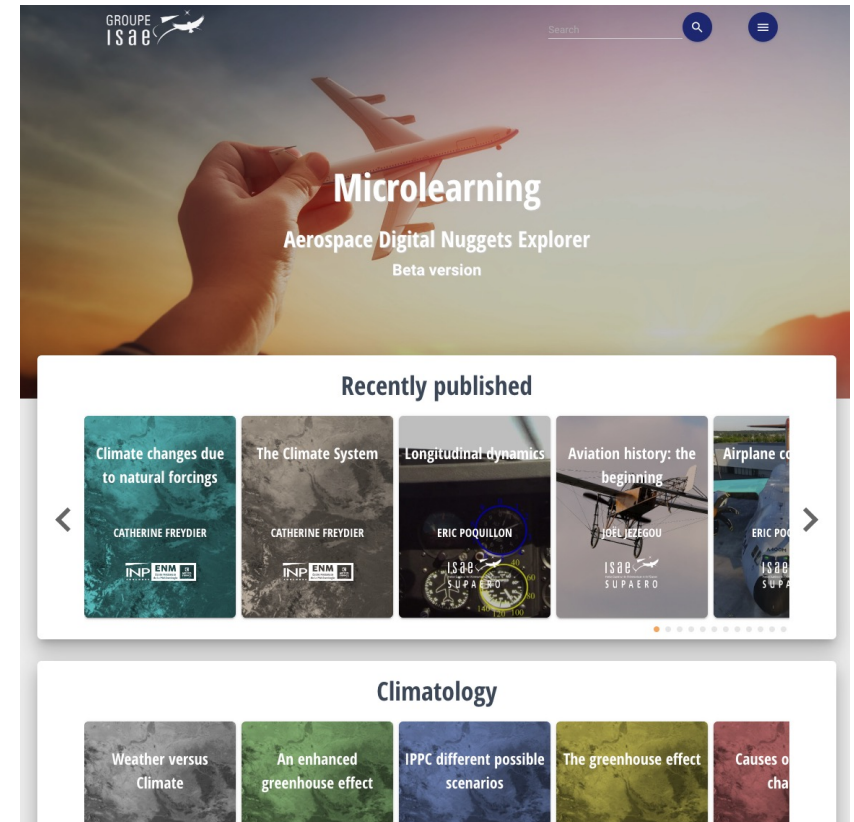
Have access to dashboards based on the results obtained within the ADNs.



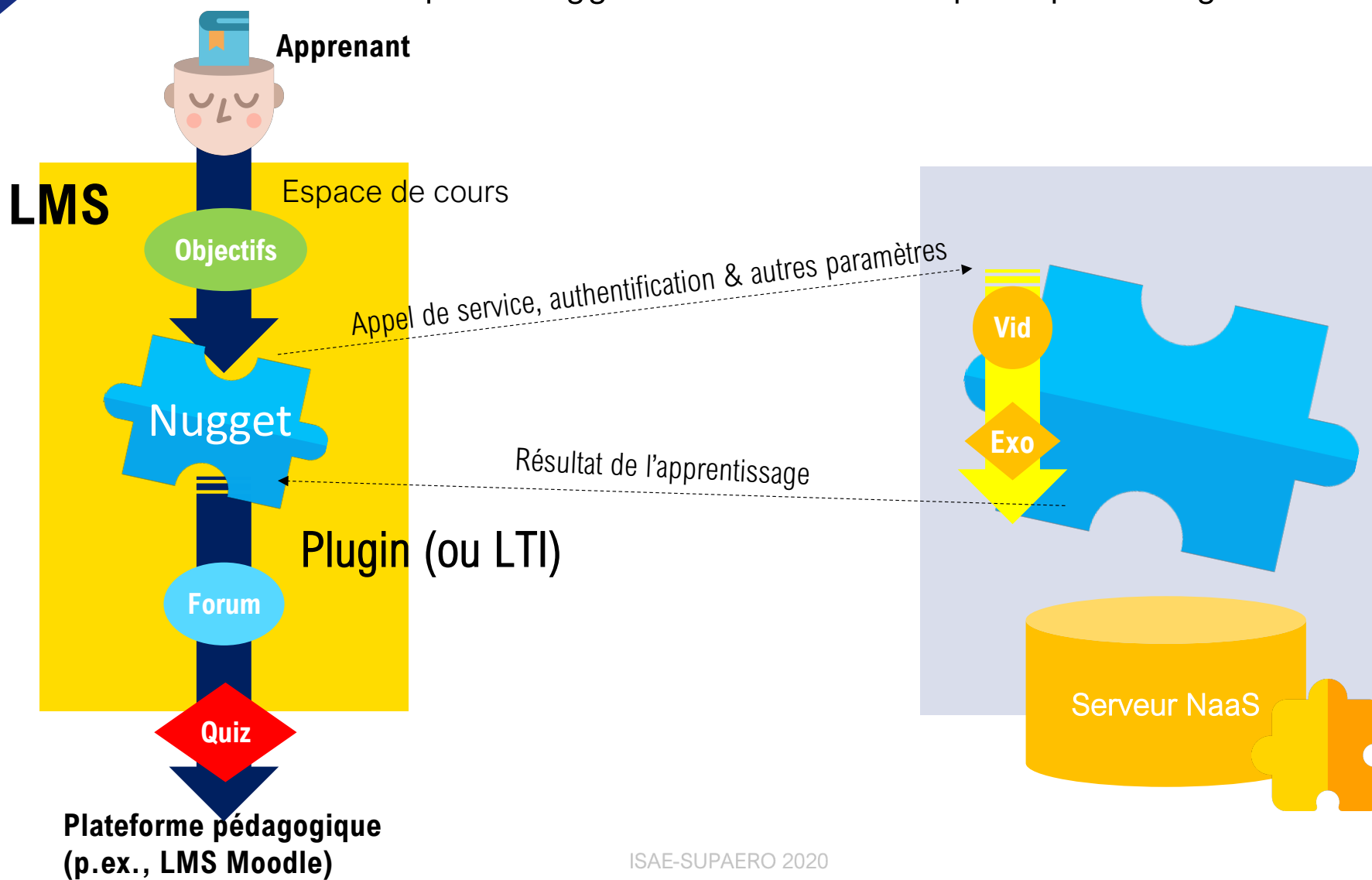
AI suggestions (soon)

Different content suggestions from the learning traces left by learners using the ADNs.

DEMO



Principe « Nuggets as a Service » : principe d'intégration dans un LMS



2 possibilités d'intégration dans Moodle

• Utilisation de « LTI »

• Plugin « Nugget »



DEMO

Nugget editor Documentation Leave Feedback

View Edit Delete Revisions Versions Licencing Debugger (NaaS administrators only)

Producer
Choose this nugget producer
ISAE-SUPAERO

Choosing a nugget producer enables you to use a subset of the licences predefined by the producer administrators.
 Save producer

Licencing

Educational institute	Licence options	Integration
<input checked="" type="checkbox"/> Groupe ISAE	Attribution, Non Commercial, No derivative, Restricted use.	LTI integration Tool: https://api.naas-edu.eu/api/versions/f510a83e-c99a-427a-bde1-6f868fa5-

Configuration de l'outil externe

Reglages de l'outil

- Nom de l'outil: PID Tuning through exp
- URL de l'outil: https://api.naas-edu.eu/api/versions/f510a83e-c99a-427a-bde1-6f868fa5-

Version LTI: MoodleMoot CAEN 2022

Clef client: moodlemoot.unicae...

Secret partage: Test de débit - Sp... HYFLEX IDEA EDETECH

Paramètres personnels: micro-contenus réutilisables pour Moodle Exemple

Exemples de Nuggets

- Airplane components
- PID Tuning through
- Transversal Balance

PID Tuning through experimentation

Add an activity or resource

Search

All Activities **Resources** Recommended

- Book
- File
- Folder
- IMS content package
- Label
- Nugget**

Search Nuggets

- Moment and stability (20 min - eric.poquillon@isae-supaero.fr)
- Programmation récursive en langage Scheme Racket (20 min - ...)

Welcome Digital@ISAE-SU

PID Tuning through experimentation

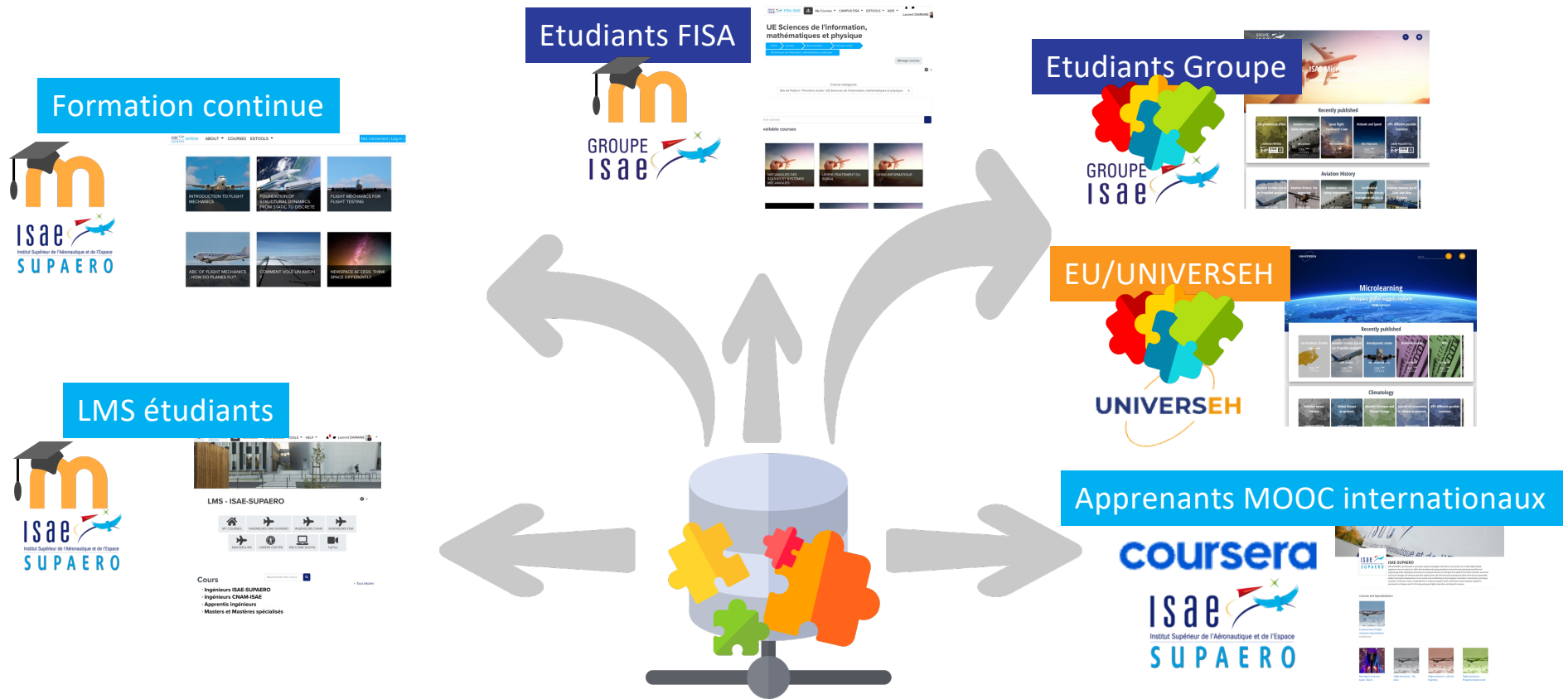
After a general presentation of a control scheme, we will focus on a simple control strategy, based on the PID controller (Proportional, Integral, Derivative).
First it is necessary to define some performance criteria that will be used for the adjustment and tuning of the PID controller.
Then, the importance of the compromises to be made between these criteria during the tuning phase will be exhibited in experiment.

Announcements Available but not shown

PID Tuning thro... Mark as done

Controller: choice and design?
Model Based Design
Now linear

Maitriser la distribution vers différentes plateformes physiques distribuées





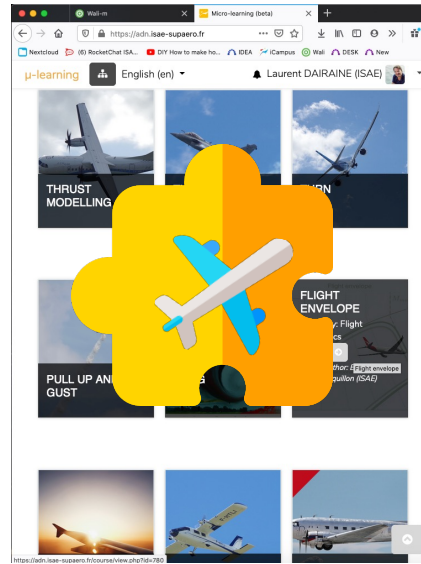
Réutilisation en mécanique du vol

ANR Hybridation PUNCHY (UNIT)

Open Education

Ingénieurs SUPAERO 1A

Formation initiale
Complément au cours magistral présentiel



Master spécialisé TAS Aero option FTE (Flight Test Engineering)

Formation initiale & continue
Complément au cours magistral présentiel

MOOC Coursera

Formation 100% à distance

Flight Mechanics for Flight Testing (Airbus)

Formation continue SPOC
« Blended Learning »

Master spécialisé IEVEX

Formation continue aux essais en vol
Complément à formation HyFlex

Ingénieur par apprentissage ISAE (FISA)

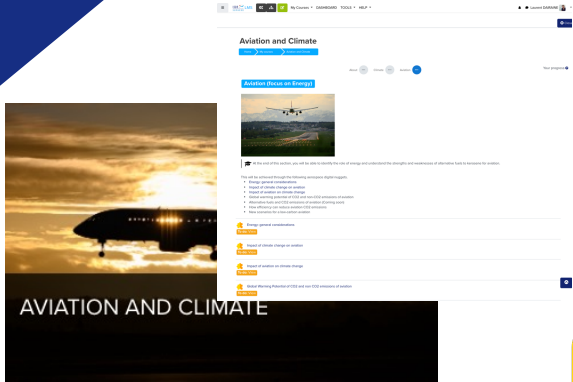
Formation initiale
Classe inversée

all@isae-supero

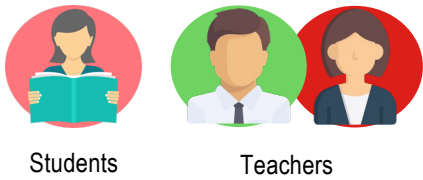
Micro-Learning

L'Université numérique - ISAE-SUPAERO

Exemple d'usage en mode Campus Hybride



Course kick-off



Students

Teachers

1

LMS: Distant and self-paced learning



Students

2

Wrap-up session



Students

Teachers

3



Questions ?

ADN & NAAS



<https://www.naas-edu.fr>

Remerciements



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