

# SYSTEMS ENGINEERING: THE NEW STANDARD FOR A COMPLEX WORLD

From mechatronics to connected products and model-enterprise



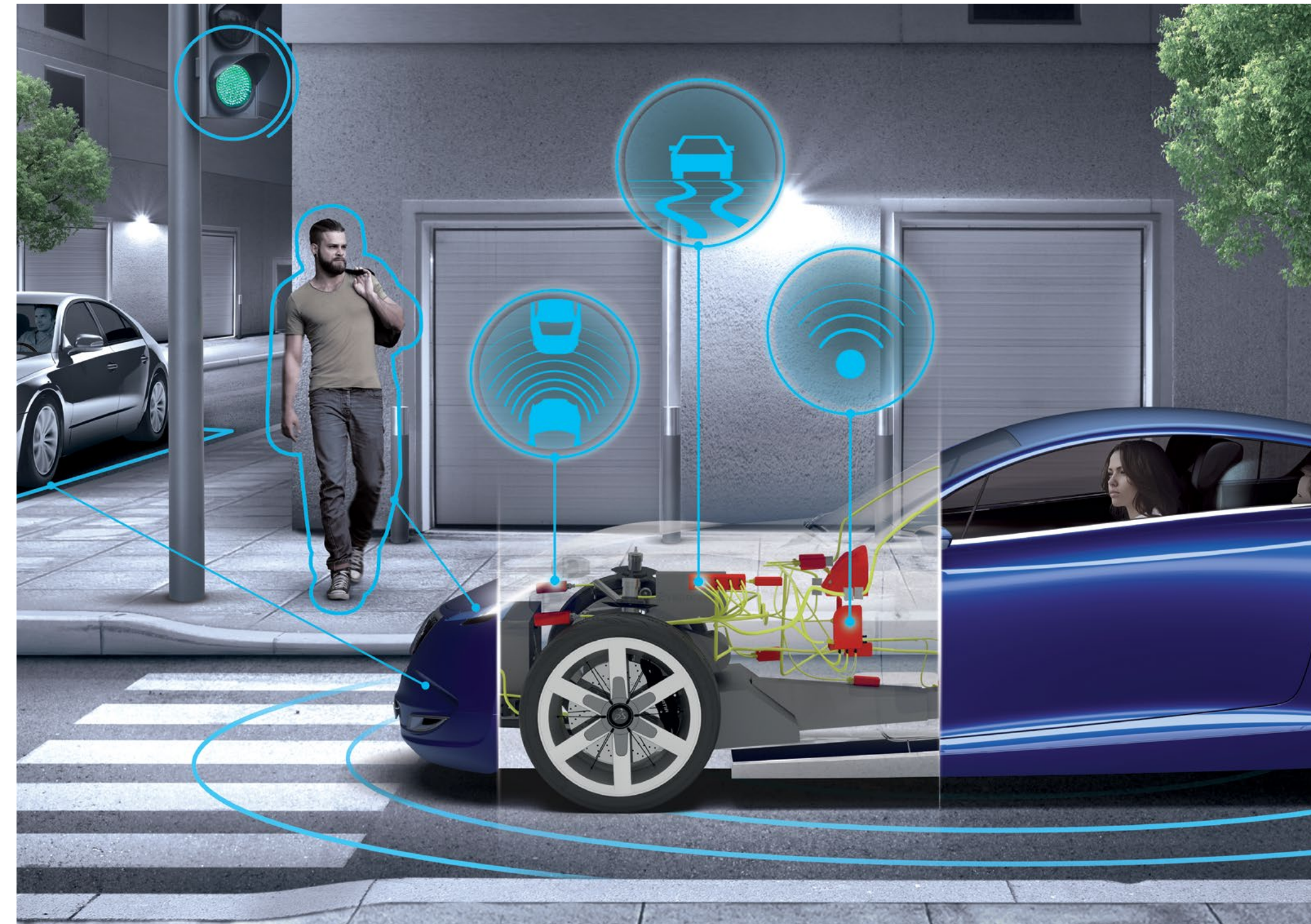
Upskill your students now!

# IT'S TIME TO UPSKILL YOUR STUDENTS ON SYSTEMS ENGINEERING!

As products become more complex, with systems combining mechanics, electronics, software, control systems, and connectivity, manufacturing companies need to use a Systems approach and particularly Systems Engineering (SE) to support the rapid development of intelligent and sustainable products and services.

To address the challenges of a complex and ever connected world, you should ensure your students have the right knowledge and skills to apply these methods, processes and tools to become successful systems engineers — a critical job for the future.

However, according to a 2020 survey by the American Society of Engineering Education (ASEE), 54% of engineering students think they are either somewhat-prepared or very little-prepared in Model-Based System Engineering Engineering (MBSE). So it's time to upskill your students not only on MBSE but also on other SE skills!



# TRANSITIONING TO NEW EXPERIENCES

## MODEL-BASED DESIGN

Transition to mathematical and visual method for designing complex systems

## MODEL-BASED SYSTEMS ENGINEERING

Transition to model-based systems engineering approach using SysML

## MECHATRONICS

From mechanical design to mechatronics systems

## CYBER-PHYSICAL SYSTEMS

Integration of cyber and physical components into hybrid systems

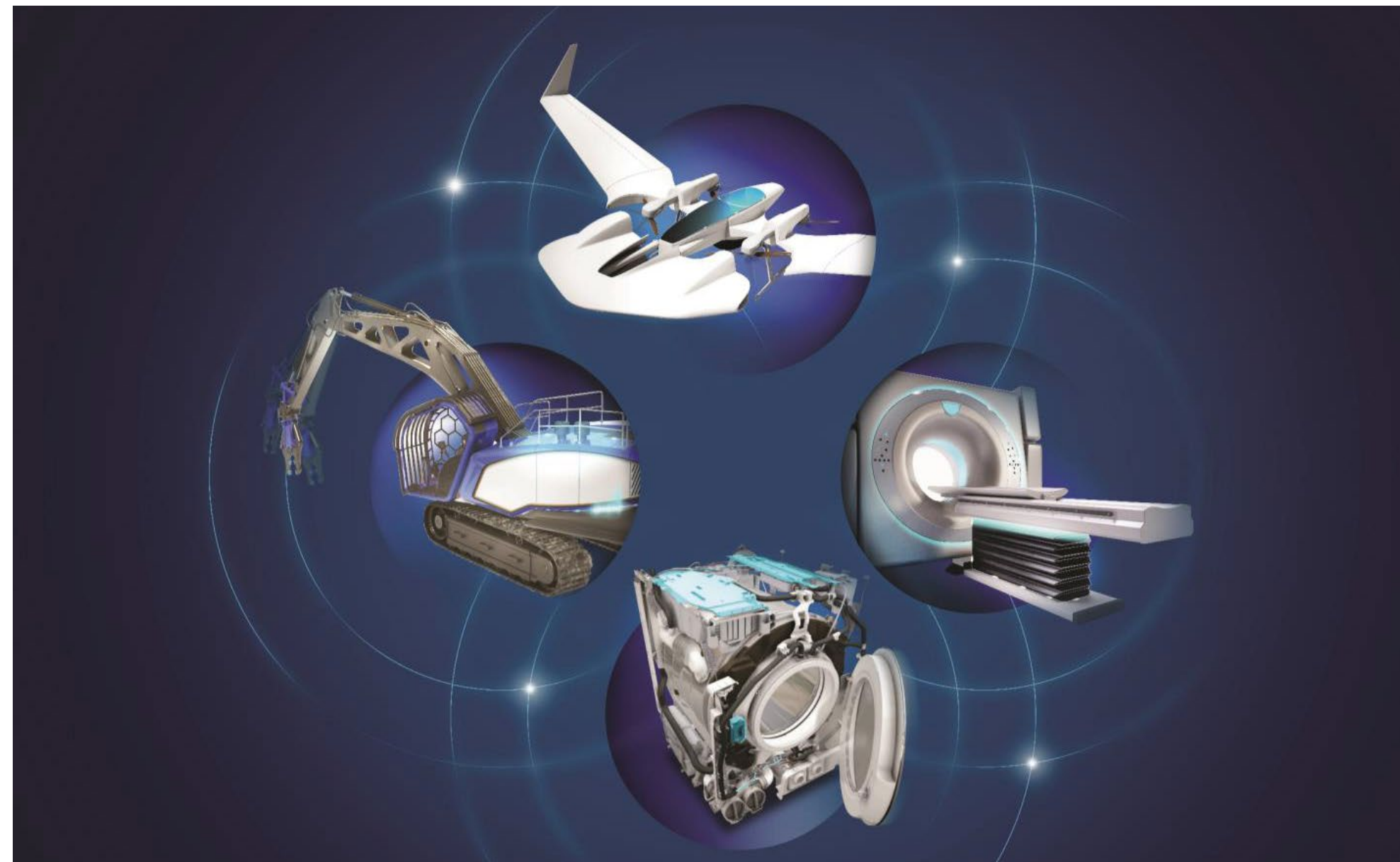
To address this transitioning, Dassault Systèmes offers the ideal solution for all systems engineering projects. Essential for modeling modern electro-mechanical systems, simulating their behavior, reducing systems' impact on the environment, and optimizing their design, our solution will support you in preparing your students for the challenges facing industry with Model-based Design, MBSE, Mechatronics or even Cyber-Physical Systems approaches.

Let's get ready!



# APPS, LEARNING CONTENT AND COMMUNITY

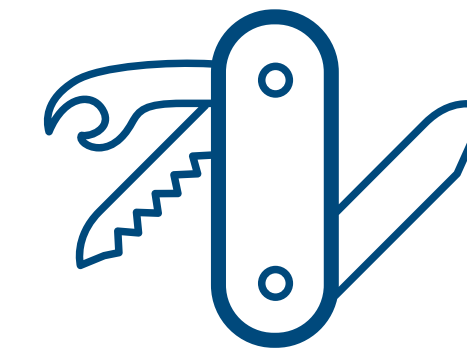
To prepare your students with relevant future-ready skills, you will need to teach them modeling, simulation and design of complex systems where physical and software components (embedded logic/smart products) are deeply intertwined. The **3DEXPERIENCE**<sup>®</sup> platform, by including Apps, Learning Content and Community, delivers a unique, open and extensible platform that fully integrates the cross-discipline modeling, simulation, verification and business process support needed for developing complex systems and products.



**APPS**  
FOR MASTERING  
SYSTEMS DEVELOPMENT



**LEARNING CONTENT**  
FOR PREPARING  
STUDENTS WITH THE  
RIGHT SKILLS

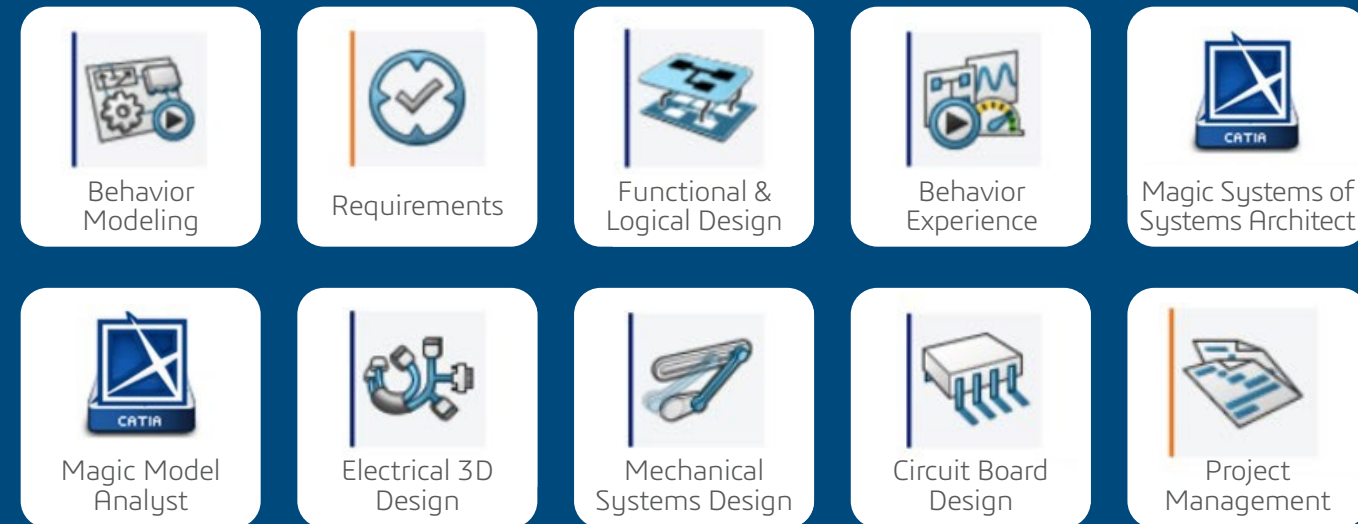


**COMMUNITY**  
FOR BEST PRACTICES IN  
SYSTEMS ENGINEERING



# APPS

Let's push the boundaries of systems engineering (SE) and empower your students with this multidisciplinary, integrated solution that enables them to collaborate in the classroom with the right apps to become proficient in the systems development process.



# KEY BENEFITS OF SE ROLES

- Leverage a best-in-class model-based system development platform to accelerate the development and validation of complex systems and products.
- Integrate embedded systems and 3D product design processes to leverage intelligent embedded systems in the **3DEXPERIENCE** simulation of complex mechatronic products and systems.
- Verify the behavior of complex products and systems, through Modelica based modeling and simulation.
- Collaborate across all disciplines to define a complete systems architecture through multiple operational, functional and component views.
- Use Systems Modeling Language (SysML) compliant toolchain for Model-based Systems Engineering.

Deep dive further into the Roles and Apps:

[go.3ds.com/3DXSYS](https://go.3ds.com/3DXSYS)



# LEARNING CONTENT

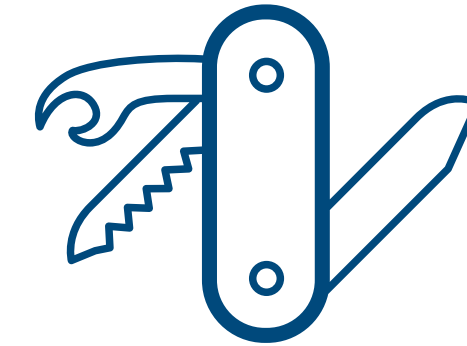
You've probably spent a lot of time developing your knowledge and know-how to teach your students the right skills, creating motivating lectures and hands-on exercises in systems engineering, as well as preparing them with inspiring capstone projects for the world of industry. To enable you to go even further, we have developed learning experiences tailored for you. Either from our Edu Space e-learning platform or from our communities, we offer learning materials and videos to support all your SE activities.

Engineering Libraries in Systems Engineering basics, CATIA Dymola Behavior Modeling, CATIA MAGIC or MBSE with SysML – all these learning materials are there for you!

[eduspace.3ds.com](https://eduspace.3ds.com)

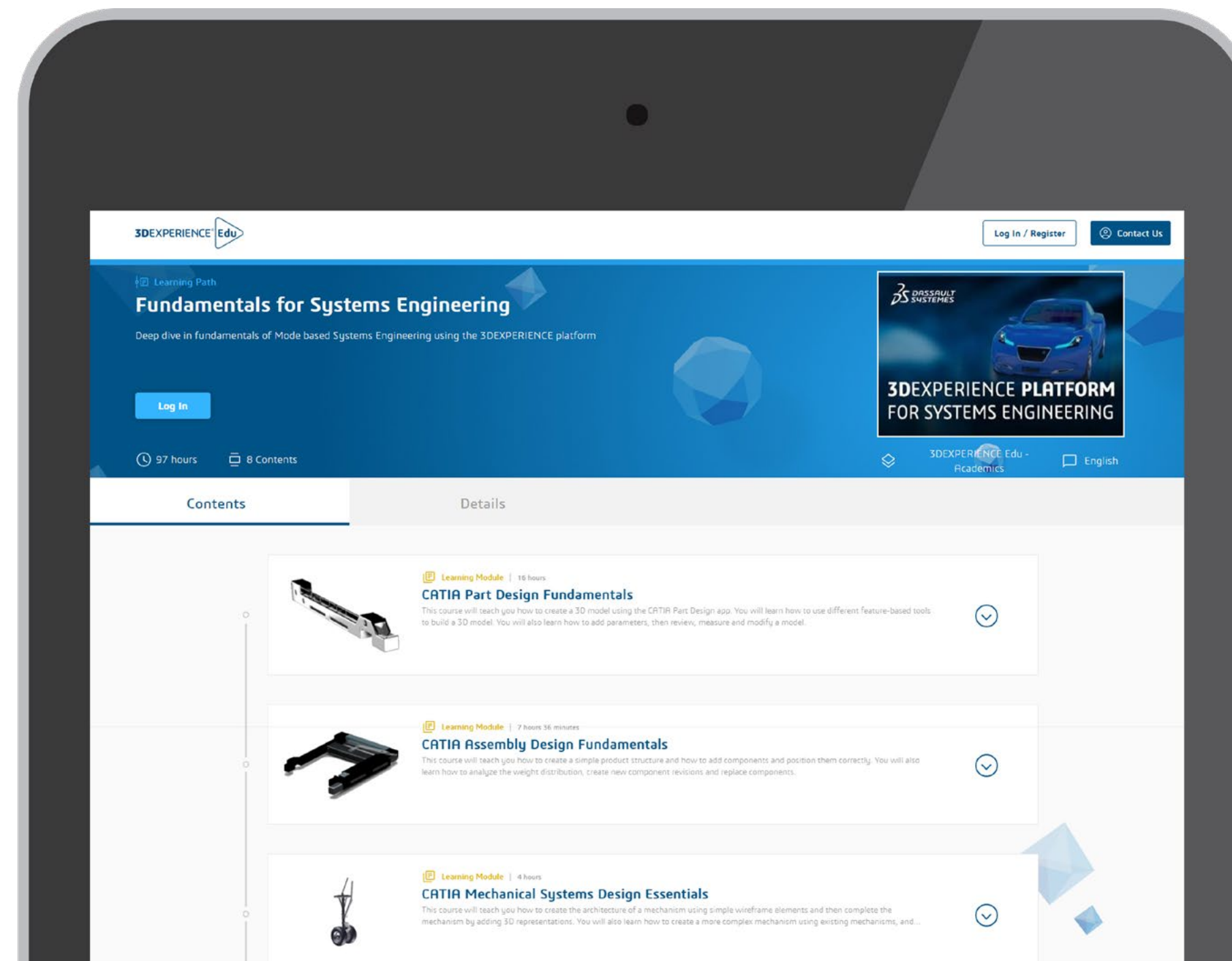
## UPSKILL YOUR STUDENTS

LEARNING MATERIALS  
DESIGNED BY SYSTEMS  
ENGINEERING CHAMPIONS



## PROJECT-BASED LEARNING

GET YOUR STUDENTS INSPIRED



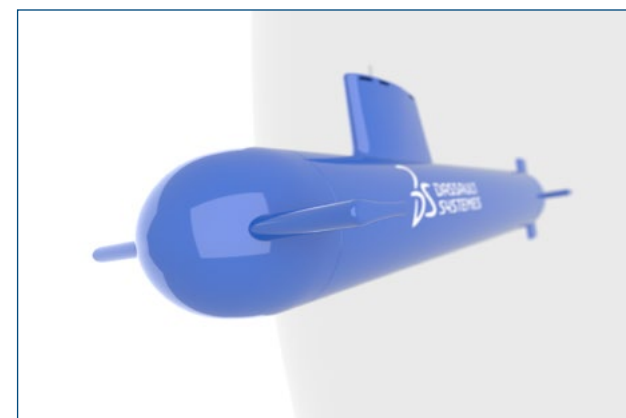
# PROJECT-BASED AND EXPERIENTIAL LEARNING

[edu.3ds.com/hub](https://edu.3ds.com/hub)

- **Need to engage your students with innovative projects?**

Now, you can expose them to numerous examples of multidisciplinary learning activities that provide them with innovated learning. Discover our project-based learning Library and develop your students' engineering skills with fun projects!

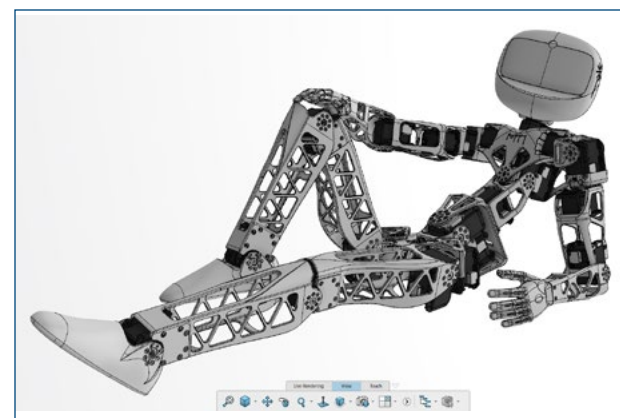
Open to a stakeholders in a project, such projects can be easily structured by customizing the **3DEXPERIENCE** platform – and you can do this yourself! Accessible anywhere, anytime, in the cloud, this customization provides you and your students a flexible framework which addresses essential activities within projects, such as:



**SUBMARINE DRONE**

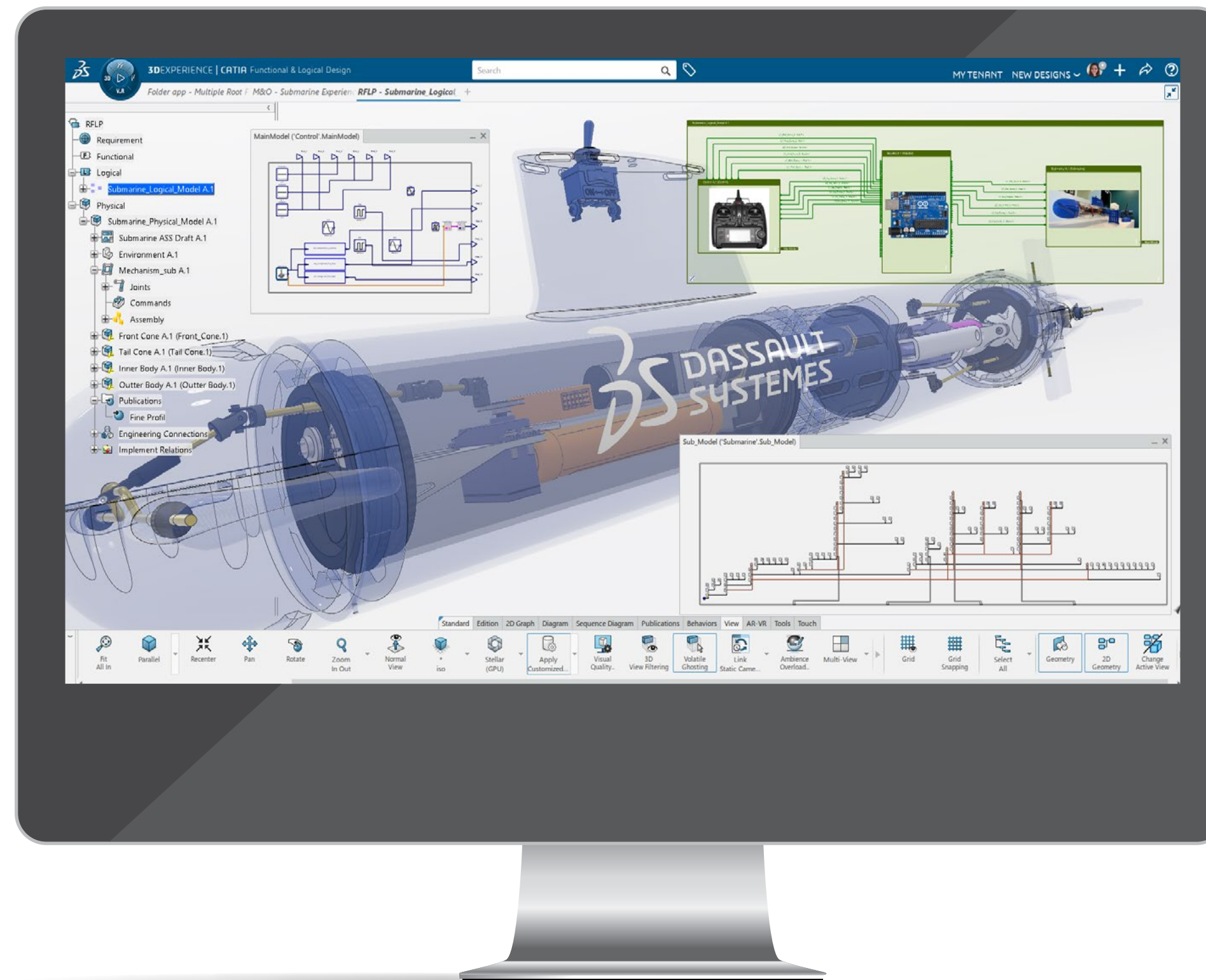


**DUAL-ROTOR AERO EXPERIMENT**



**DIGITAL TWIN WITH POPPY**

- **Need more inspiration?** Explore all our learning experiences to get ever more inspired. We've got everything you need on our Edu Hub to empower your students and develop their skills.



Click on thumbnails to explore



# A GLOBAL COMMUNITY

## Want to accelerate collaboration and international exposure for your students?

- You understand that you've got all the right content for your transitioning, now you just need connections with teachers that are also **3DEXPERIENCE** users and SE experts.
- **3DEXPERIENCE** Edu | Academics Community is for you! Teachers from around the world and our Edu technical experts are there for your empowerment. Whether the solution comes from a peer, Dassault Systèmes or an Edu Champion, you're not alone anymore! What's more, you'll be invited regularly to private webinars to expand your know-how in specific topics. So stay tuned!

## Join our Expert Educator Committee dedicated to SE

- Our **3DEXPERIENCE** Edu Expert Educator Committee for Systems Engineering has been set up to encourage you to adopt and use state-of-the-art systems engineering methods to support the evolution of complex systems and systems of systems in your curricula.

## Need some coaching to develop your latest hands-on exercise? Need platform best-practices?

- A dedicated CATIA Community is also there for you to engage with your peers and find out more about SE: **3DEXPERIENCE** CATIA User Community and discover all webinars dedicated to cyber-physical systems and systems engineering.

Break the silos by working transversally with other expert committees!



### COURSES

Master Dassault Systèmes Systems Engineering Solutions



### VIDEOS

Watch quick onboarding tutorials to learn Systems Engineering



### FEATURED TOOLS

Discover some dedicated libraries and tools



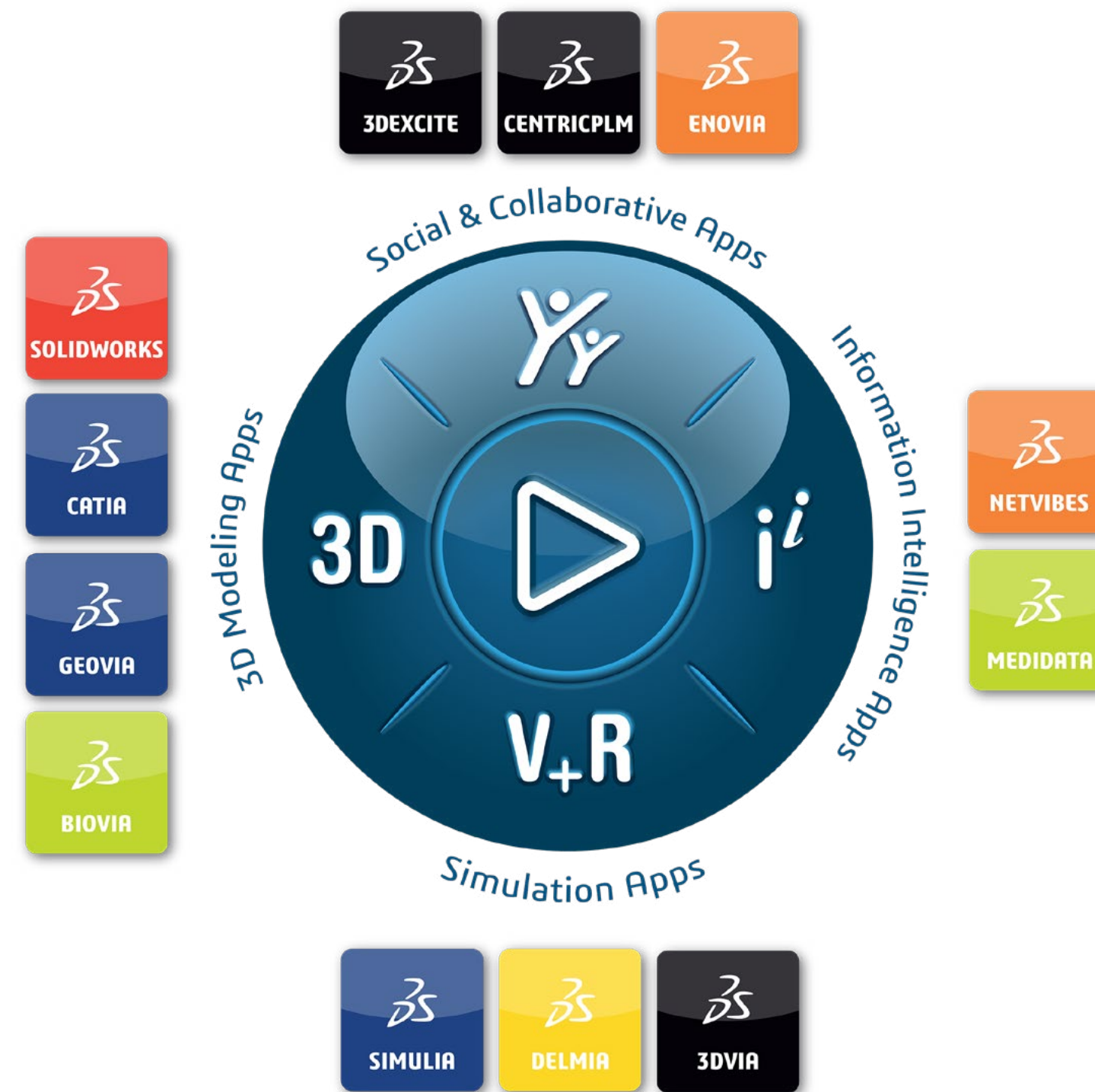
To discover more about our Systems Engineering offer, reach [go.3ds.com/3DXSYS](http://go.3ds.com/3DXSYS)



Our **3DEXPERIENCE®** platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3DEXPERIENCE** Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating 'virtual experience twins' of the real world with our **3DEXPERIENCE** platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes' 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit [www.3ds.com](http://www.3ds.com).



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