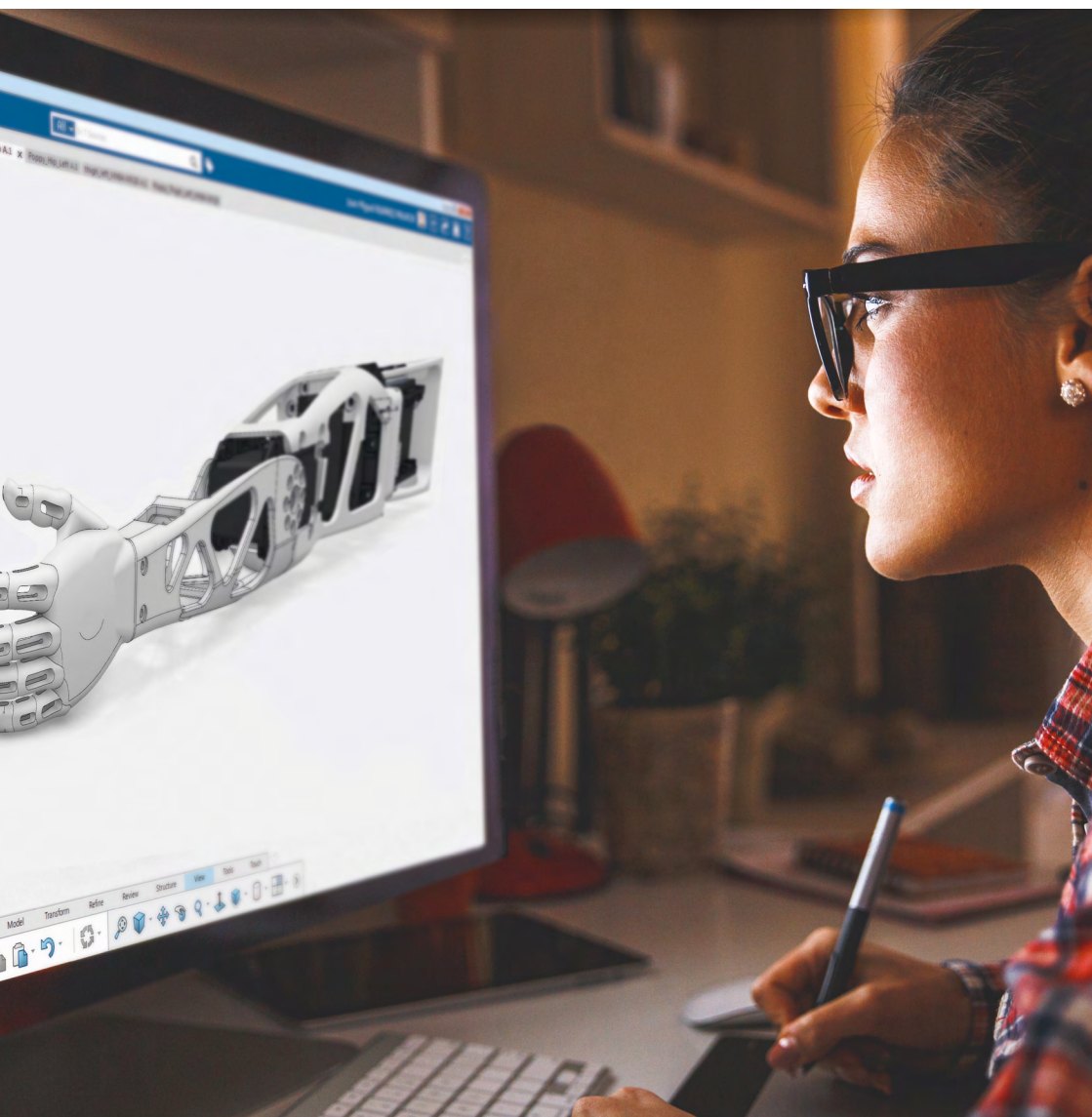




**3DEXPERIENCE®**

**3DEXPERIENCE® FOR ACADEMIA**  
**INDUSTRY-DRIVEN**  
**DIGITAL SOLUTIONS**  
**FOR ENGINEERING**  
**EDUCATION**



# 3DEXPERIENCE® FOR ACADEMIA

**"Getting the 3DEXPERIENCE for Academia on the cloud up and running took a bit less than one hour!"**

Michel MICHAUD, École nationale d'aérotechnique, Canada

**"The new assembly system closely reflects processes used in industry, which adds value to the work done by our design teams. Being able to use a PLM tool gives our budding engineers first-hand experience of industrial practice."**

Raphael MONTAVON, Haute École ARC, Switzerland

**"Using the 3DEXPERIENCE platform has allowed us to create a new project dynamic and foster collaborative practices across our institution. The concurrent approach of Engineering and Manufacturing has shown the true value of the 3DEXPERIENCE platform architecture."**

Gilles HIVET, POLYTECH Orléans, France

**"The seamless digital engineering processes, combined with cyber-physical production systems, made possible thanks to the app- and cloud-based tools of the 3DEXPERIENCE platform for Academia offer huge potential in education and research. Students learn all about the strengths of integrated data management, cross-functional collaboration, and innovative digital and virtual factory capabilities for developing hybrid work systems and managing smart products based on highly diverse customer requirements in self-steering production systems."**

Prof. Vera HUMMEL, ESB Reutlingen, Germany

**3DEXPERIENCE®** for Academia, the most advanced software for product and learning innovation, is now available in a few clicks, on the cloud or on-premises, within an institution's own operating environment. Both options bring new capabilities to educators and students who want to experience the engineering practices of industry leaders for increased employment opportunities in the new global economy. Years of collaboration with educators and students across a wide variety of institutions and disciplines have led to a flexible, tailored set of learning solutions.

**3DEXPERIENCE** for Academia encompasses a suite of world-class integrated software:

- CATIA® for product design
- SIMULIA® for realistic simulation
- DELMIA® for digital manufacturing
- ENOVIA® for collaborative innovation

# BRINGING INDUSTRY AND INNOVATION INTO THE CLASSROOM

**3DEXPERIENCE** for Academia is an advanced product innovation platform designed for use across a variety of industries. What's more, it offers the ideal infrastructure for bringing industry endorsed practices into learning. Encompassing comprehensive CAD, CAM and CAE capabilities, the platform provides powerful solutions for managing collaborative work and joint innovation. Fully modular, the platform can be adopted either in full or for a specific component.

**3DEXPERIENCE** for Academia comes as a multi-disciplinary social collaboration baseline. It can be extended with dedicated packages supporting educational, research, and organizational processes in Design and Engineering, Systems Engineering, Manufacturing and Production, Architecture and Civil Engineering and Governance and Project Management.

Through an intuitive, web-based user interface, educators can easily create domestic or international collaborative environments, such as student projects or exams, and assign roles to participants. Students can start projects on campus, continue at home, and discuss issues over online communities or screen-sharing sessions. The platform ensures that they always have access to the latest version of their work.

## ACCELERATING PROJECT-CENTRIC LEARNING AND LAB VIRTUALIZATION

**3DEXPERIENCE** for Academia is the ideal platform for enhancing project-centric learning, providing an integrated, distributed, collective digital universe for project-oriented learning methods such as "Conceive – Design – Implement – Operate" (CDIO®) or "Project (Problem)-based-learning" (PBL). At any time, educators can remotely monitor projects, manage idea maturity, and assign grades. Collaboration becomes easy, dynamic, and natural among teachers, researchers, students, and industry mentors. The platform enables project mentors to facilitate more projects without compromising on the attention needed by students.

**3DEXPERIENCE** for Academia provides a proven environment for deploying digital labs involving realistic virtual 3D equipment, coupled bi-directionally with real remote devices. By creating an Internet of Things (IoT) across dispersed pools of learners, educators, devices and content, the platform opens new horizons for innovative educational practices, such as distant learning, Massive Open Online Courses (MOOCs), and flipped learning.

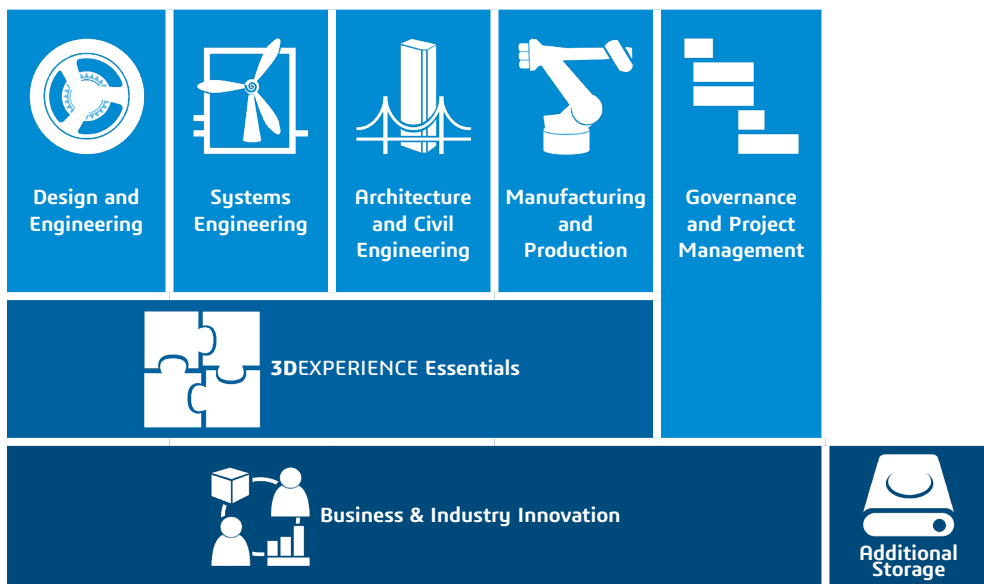
## A GATEWAY TO THE FOURTH INDUSTRIAL REVOLUTION

**3DEXPERIENCE** for Academia is constantly evolving to support national manufacturing initiatives with enhanced capabilities for teaching, learning and advancing the most promising industry practices – from the Industrial Internet of Things (IIoT), to the digital value chains, through additive manufacturing, smart buildings, or intelligent farms. It provides institutions with a credible up-to-date digital universe to apply for educational research grants in numerous areas of innovation.

## A NATURAL STEP FORWARD

Current users of CATIA, DELMIA V5 or V6 will find all the features they are familiar with in the **3DEXPERIENCE** for Academia platform, together with a host of new capabilities, enabling their students to contribute to the ongoing transition among employers toward experience-based innovation. Special offers are available to facilitate gradual migration as well as various instruments to facilitate quick learning and updating of existing educational content.

# 3DEXPERIENCE® FOR ACADEMIA



## NEW FLEXIBLE OPTIONS

The **3DEXPERIENCE** platform is structured as sets of roles corresponding to typical industry activity profiles. The specific 'academia' package builds on packages that aggregate broad sets of the same roles.

All packages are available in four sizes (S, M, L, XL) to meet the needs of diverse institutions in higher and secondary education:

- **Small** – for up to 30 users
- **Medium** – for up to 100 users
- **Large** – for up to 300 users
- **Extra Large** – for up to 900 users

**NEW:** While the cloud version is especially relevant for institutions with limited IT support, an on-premise option is now available for those looking for extended integration within their own operating environment. Both options offer equivalent functionality, including social and collaborative capabilities. Both provide the same scope for scaling from focused to multi-purpose use.

Available on the cloud, pricing includes all use and service costs and any configuration is easily scalable. Suitable storage capacity is available depending on customer needs.

# BUSINESS AND INDUSTRY INNOVATION

## ENTRY POINT FOR ALL LEARNING ACTIVITIES

**Business and Industry Innovation** is the baseline block designed for institutions interested in social collaboration and research.

## NOT JUST ENGINEERING

With its dashboard capabilities, **Business and Industry Innovation** enables project follow-up, hands-on exercises, and technology watch through RSS feeds.

## COLLABORATION AT THE HEART OF TEACHING AND PEER LEARNING

- Integrated online communities: blogs, Q&As, surveys, idea maturity management
- Instant collaboration enablement: chat, mockup co-design and co-review
- Definition of digital workspaces tailored to teaching strategies: hands-on, student projects, parts library, access list management

## ADVANCED SEARCH ENGINE

Find parts, community posts, or documents, whatever their type and wherever they are.

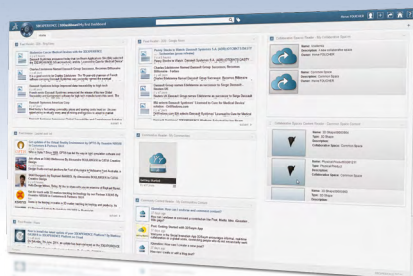
## CLOUD ACCESS

The platform is accessible from anywhere, anytime, inside and outside the institution: in the lab, at home and on the go.



## EMBEDDED ROLES

Industry Innovation  
Business Innovation



# 3DEXPERIENCE ESSENTIALS

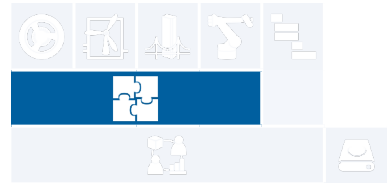
**3DEXPERIENCE Essentials** is a broad application set built upon the **Business and Industry Innovation** foundation, encompassing a vast set of Dassault Systèmes solutions.

The ideal basis for universities or technical colleges to support their transition toward project-based learning or student-centered learning, **3DEXPERIENCE Essentials** provides a complete digital framework for team-based ideation, contextual learning, collective innovation, solution creation and various methods for project evaluation.

**3DEXPERIENCE Essentials** provides ENOVIA's powerful collaborative management capabilities to control and synchronize assemblies, resources, and teamwork. Including a large subset of CATIA design functions, it enables conceptualizing and detailing virtually any type of object. With DELMIA digital manufacturing tools, it makes machining, robotics, and rapid prototyping an integrated exercise, ensuring manufacturability of designs and streamlining manufacturing programming. Right-first-time practices are enforced through mechanism simulation, associative stress analysis from SIMULIA, and ergonomics simulation.

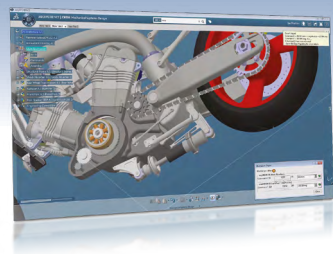
New additions focus on various aspects of powder-bed fusion additive manufacturing, including nesting, automated support design and laser path optimization. New cutting tool design functions extend the broad set of subtractive manufacturing capabilities.

Converters to and from other applications, as well as 3D printing output formats, are available for exchanging data with various partners and devices.



## EMBEDDED ROLES

Mechanical Designer  
Mechanism Simulation Designer  
Creative Designer  
3DMaster Conceptual Designer  
Manufacturing Engineer  
Shopfloor Equipment Engineer  
NC Prismatic Programmer  
NC Prismatic & Turning Programmer  
NC Milling Machining Programmer  
Ergonomics Specialist  
Collaborative Innovation  
Requirements Manager  
Manufacturing BOM Manager  
Product Engineer  
Project Team Member  
Classification Manager  
Design Review Manager  
Volume Computation  
Simulation Foundation  
Stress Engineer  
Process Simulation Analyst  
Plant Layout Designer  
Multiple converters to & from other applications  
Change Management  
Configuration Management  
Additive Manufacturing Engineer **(NEW)**  
Robotics Offline Programmer **(NEW)**  
Robotics Engineer **(NEW)**  
Cutting Tool Technologist **(NEW)**

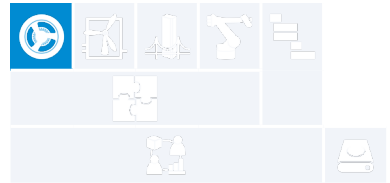


## DESIGN AND ENGINEERING

**Design and Engineering** extends **3DEXPERIENCE Essentials** with the capability to automate the modeling of parts produced using specific manufacturing processes, such as sheet metal, composites, and molding or routed systems comprising pipes, tubes and wires. In addition, **Design and Engineering** automates the associative design of tooling which is required to actually produce such parts and systems.

Essential to teaching modern development practices in industries such as foundry, automotive, and aerospace, **Design and Engineering** is also an ideal solution for learning and teaching industrial design and styling. It brings advanced capabilities in support of processes that are seen critical in several national manufacturing initiatives: topological optimization in support of additive manufacturing, an end-to-end packaging solution to further reduce new product time-to-market and various simulation capabilities for plastic injection parts, fluid dynamics and composite optimization.

Powerful process automation tools are provided to template routine work or reuse design expertise.



## EMBEDDED ROLES

- Mechanical & Shape Designer
- 3D Master Designer
- Sheet Metal Designer
- Plastic Mechanical Designer
- Reverse Shape Optimizer
- Product Industrial Designer
- Virtual & Physical Prototyper
- Product Optimization Designer
- Template Designer
- Composites Engineer
- Mold & Tooling Designer
- Mechanical Tooling Designer
- Best Practices Designer
- Electrical 3D Systems Designer
- Electrical Harness Manufacturing Engineer
- Fluid 3D Systems Designer
- Class A Modeler
- Class A Expert
- Car Design Ergonomist
- Aesthetical Shape Modeler
- Hydroformed Sheet Metal Designer
- Composites Braiding Designer
- Fasteners Designer
- Ergonomist
- Structural Analysis Engineer
- Structural Package Designer **(NEW)**
- Function Driven Generative Designer **(NEW)**
- Composites Simulation Engineer **(NEW)**
- Plastic Injection Part Engineer **(NEW)**
- Fluid Dynamics Engineer **(NEW)**



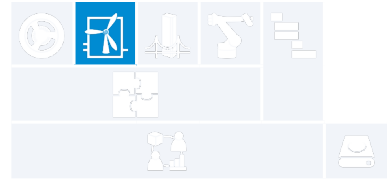
# SYSTEMS ENGINEERING

**Systems Engineering** groups a rich set of functions essential for concurrently designing and simulating various types of objects using models that optimize their geometry and their function. Indispensable for modeling modern electromechanical systems, simulating their behavior, and optimizing smart products, **Systems Engineering** comes with numerous libraries explaining the physics of diverse technologies and phenomena. Open to other simulation systems, it provides a comprehensive multi-physics design, simulation, and optimization framework for any mechatronic or systems engineering course.

Real electromechanical systems, whether programmable or not, can be completely virtualized, connected, and controlled using the solution, reflecting software-in-the-loop and hardware-in-the-loop methodologies.

These characteristics open up the immense field of virtual labs, tele-operated learning devices, and “flip lab” practices.

New capabilities are provided to increase integration across the different levels of system representations (Requirements, Functional, Logical and Physical). This structured environment creates an ideal framework for learning the principles and practices of systems architecture and tradeoffs.



## EMBEDDED ROLES

- Dynamic Systems Designer
- Systems Schematic Designer
- Mechatronics Systems Designer
- Systems Behavior Optimization
- Systems Powertrain Library
- Systems Flexible Bodies Library
- Systems Smart Electric Drives Library
- Systems Engine Dynamics Library
- Systems Flight Dynamics Library
- Systems Simulink Export
- Systems Real Time Execution Export
- Systems FMU Export
- Systems Human Comfort Library
- Systems Battery Library
- Systems Engines Library
- Systems HVAC Library **(NEW)**
- Systems Electrified Power Train Library **(NEW)**





# ARCHITECTURE AND CIVIL ENGINEERING

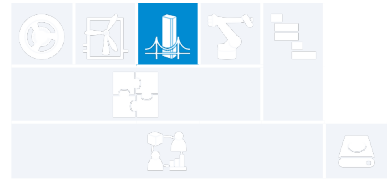
**Architecture and Civil Engineering** is a new set of capabilities expanding the powerful collaborative framework of **3DEXPERIENCE Essentials** in the construction and offshore and shipbuilding industries.

Especially targeting early project stages, it provides schools of architecture and departments of civil engineering with an integrative Building Information Modeling (BIM) environment to harmonize interactions between creative architects, architectural engineers, and fabrication and construction engineers.

Powerful methods for conducting multidisciplinary trade studies help optimize the overall structure of ships, buildings, dams, stadiums, and bridges. New steel structure analysis and routed systems modeling capabilities further facilitate structure, HVAC, fluid and electrical engineering.

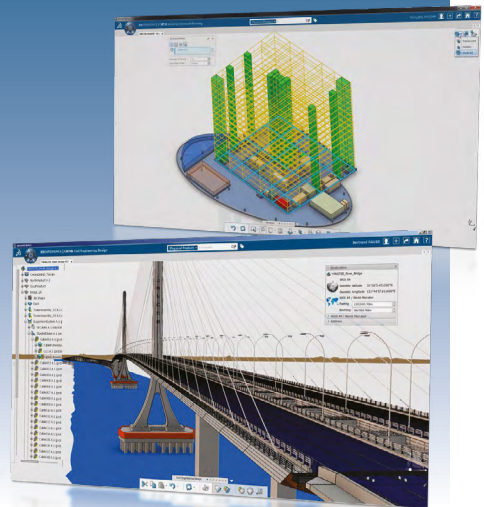
**Architecture and Civil Engineering** relies upon proven clash management and design automation functionality to produce highly valid designs. It familiarizes students with essential practices, such as template-based reuse methodologies or weight and cost management, promoting compliance with environmental regulation and building and fabrication requirements.

**Architecture, Shipbuilding and Civil Engineering educators** benefit from this application set through 2D and 3D capabilities, together with a range of data conversion tools, to engage students with the collaborative methods needed by the fragmented, multi-stakeholder organizations encountered in their industries.



## EMBEDDED ROLES

- Concept Architectural Designer
- Concept Structural Designer
- Civil Engineer
- Template Designer
- Architectural Detail Designer
- 3D Master Designer **(NEW)**
- Electrical 3D Systems Designer **(NEW)**
- Fluid 3D Systems Designer **(NEW)**
- Structure Designer **(NEW)**
- Steel and Equipment Layout Designer **(NEW)**
- Space Allocation Architect **(NEW)**
- Accommodation Designer **(NEW)**
- Structural Analysis Engineer **(NEW)**



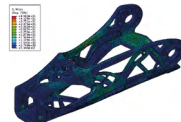
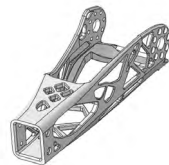
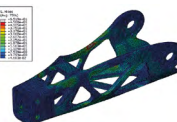
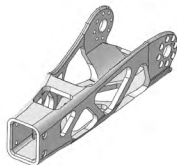
# MANUFACTURING AND PRODUCTION

**Manufacturing and Production** extends **3DEXPERIENCE Essentials** to digital manufacturing for Industrial or Manufacturing engineering programs.

This extended set of functions enables the design, simulation, automation, and control of sophisticated part production as well as assembly-level production. From off-line robot programming to producing ergonomic operator instructions, from optimizing automated production cells to balancing complete lines, **Manufacturing and Production** provides students with an ideal environment for experiencing methods practiced and required by various industries operating small facilities to large multi-plant configurations.

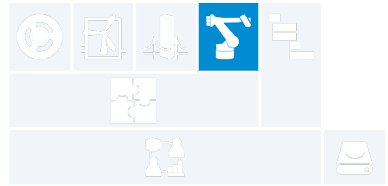
Major new functions have been incorporated to further automate the design of assembly processes especially in the fields of heavy industry, shipbuilding, construction, automotive and aerospace, where large numbers of assembly points must be managed seamlessly, robot work cells must be optimized, and routed systems must be optimally configured.

Additive manufacturing preparation is strongly supported at various steps helping to optimize manufacturing strategies and communication with actual powder-bed fusion manufacturing machines.



## EMBEDDED ROLES

- Time Study Analyst
- Assembly Simulation Expert
- NC Multi-Axis Milling & Turning Programmer
- Process Planner
- Work Instructions Designer
- Robotic Native Program Validation Specialist
- NC Machine Code Validation Specialist
- Ergonomist
- Work Safety Engineer
- NC Multi-Axis Milling Programmer
- Industrial Engineer
- Drill & Fill Engineer
- Fastener Process Planner
- Heavy Industry Assembly Planner
- Heavy Industry Process Planner
- Additive Manufacturing Programmer **(NEW)**
- Robotics Arc Engineer **(NEW)**
- Robotics Surface Engineer **(NEW)**
- Robotics Spot Engineer **(NEW)**
- Heavy Industry Structure Manufacturer **(NEW)**
- Heavy Industry Fluidic Manufacturer **(NEW)**



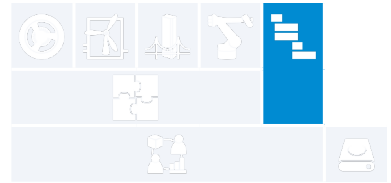
# GOVERNANCE AND PROJECT MANAGEMENT

**Governance and Project Management** extends **Business and Industry Innovation** with numerous organizational and work process related tools. It targets any educational activity where the development of technical managerial skills is a desired learning outcome. It also provides educators with powerful tools to control and manage their teaching and research processes.

A group work and deliverable management framework is provided to automate academic work processes, conduct multi-disciplinary, and potentially multi-year, projects such as engineering student competitions, or to teach typical engineering management procedures.

A classification management application is included to enable smart library structuring the discovery and practice of rigorous “build-or-buy” methods that drive critical behaviors in modern engineering.

**Governance and Project Management** also provides a non-geometric option for modeling systems requirements, similar to the one available in the **Systems Engineering** solution, reflecting the role of systems architects who do not need to model the functional, logical, or physical aspects of a system.



Project Manager  
Classification Manager  
Requirements Manager  
Product Architect  
Change Management  
Configuration Management for BOM



# A FULL RANGE OF PROGRAMS AND INSTRUMENTS TO ACCELERATE IMPLEMENTATION

In addition to the **3DEXPERIENCE®** platform itself, various services are available for institutions, educators and students to accelerate adoption, increase learning efficiency and improve employability.

## 1 3DS ACADEMY WEBSITE

The universal entry point for becoming a member of the Dassault Systèmes community and benefitting from a broad array of additional services to enrich the software experience.

The website offers students and educators access to diverse content such as online training materials, innovative educational experiences, news, contests and more.

## 2 PEER LEARNING EXPERIENCE

Peer Learning Experience is an innovative online learning solution where you can learn engineering, design and project management efficiently. Learning courses are co-developed by an international community of educators working in expert committees. The Peer Learning Experience immerses participants together with peers in an interactive journey along learning paths and reproduces classroom-style co-learning techniques.

## 3 PROJECT CENTRIC LEARNING

"ILICE" (Inspire, Learn, Innovate, Create, Evaluate) is a free downloadable, customizable pre-configuration for the **3DEXPERIENCE** to quick-start project-centric learning by taking immediate benefit of the platform's social capabilities and deploying it in project activities: make it easy for project supervisors to give teams all the attention they need, promote ideation activities, have students use modern project management and design methods, and rationalize competence-based evaluation.

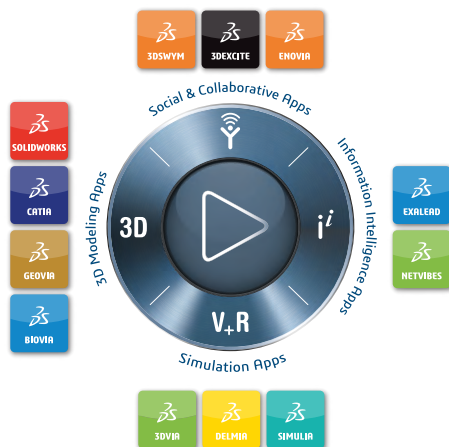
## 4 CERTIFICATION

As the rate of technological change accelerates, the Dassault Systèmes Certification Program is fast becoming an increasingly important benchmark for customers and partners who want to make smarter recruitment and employee engagement decisions. Dassault Systèmes certified resources help drive business success for customers by optimizing the deployment of Dassault Systèmes solutions.

**To learn more, visit [ACADEMY.3DS.COM](https://academy.3ds.com)**

Our **3DEXPERIENCE®** platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3DEXPERIENCE®** Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 210,000 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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