Université Paris-Saclay

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BUT3 Génie Mécanique et productique : Simulation numérique et réalité virtuelle

BUT (University technology degree)

Specialisation Génie mécanique et productique

Language(s) of instruction

French

The **Bachelor of Mechanical and Production Engineering (BUT GMP)** is a three-year program that offers specialized training in the design, manufacturing, industrial management, and optimization of mechanical and multi-technology systems. It addresses current technological, industrial, societal, and environmental challenges. The program prepares highly versatile technicians and serves as a pathway to engineering schools, aligning with the evolving needs of tomorrow’s industry.

The program is structured over three years (six semesters) and is equivalent to 180 ECTS credits, granting this national degree the academic level of a Bachelor's (Licence). It combines theoretical coursework, practical lab sessions, project-based learning, and professional immersion in industry. The curriculum follows the national program for the Mechanical and Production Engineering specialization, which is common to all University Institutes of Technology (IUTs) in France.

Out of the 2,600 total hours of instruction over three years, at least 50% are dedicated to hands-on training and real-world professional situations.

The program is available in a full-time format, which includes a 12-week internship in the second year and a 14-week internship in the third year.

It is also available through a work-study pathway. At the IUT of Cachan, this alternating school/work format is open from the second year (BUT2 and BUT3) or from the third year only (BUT3).

Télécharger la fiche détaillée
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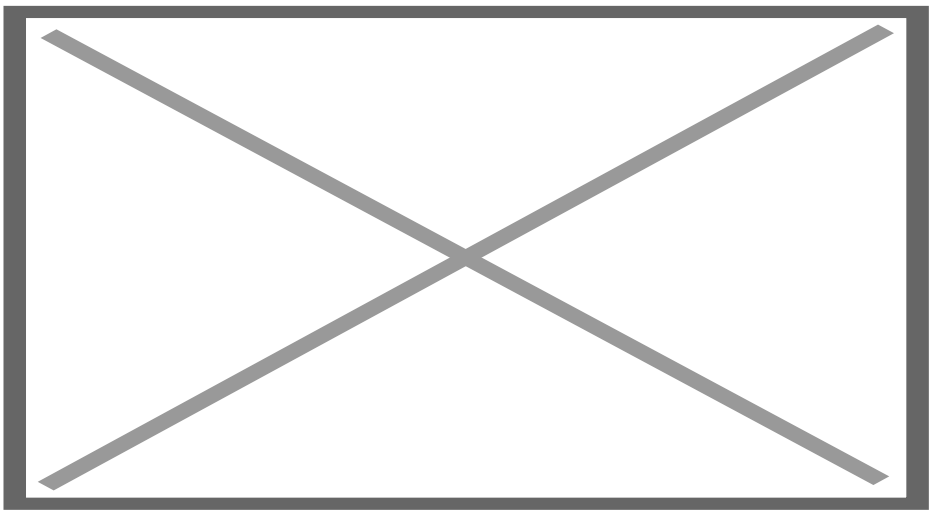

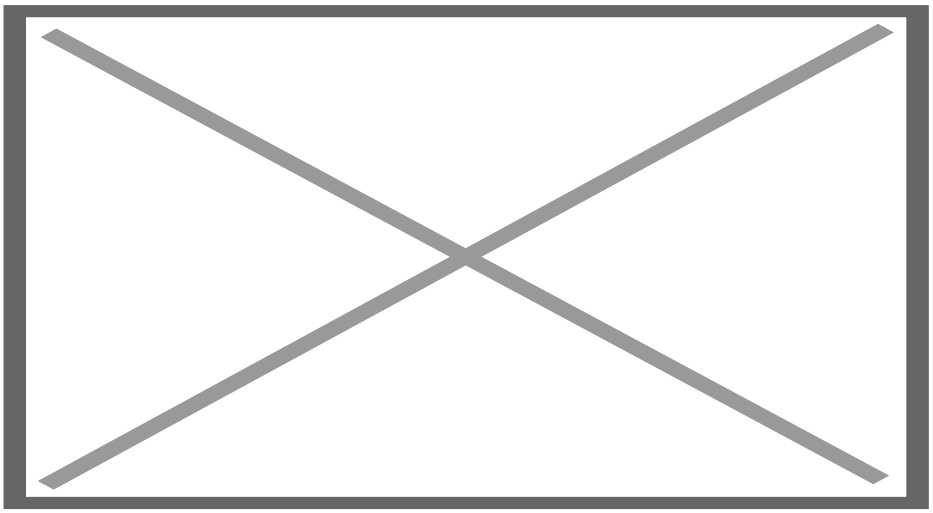

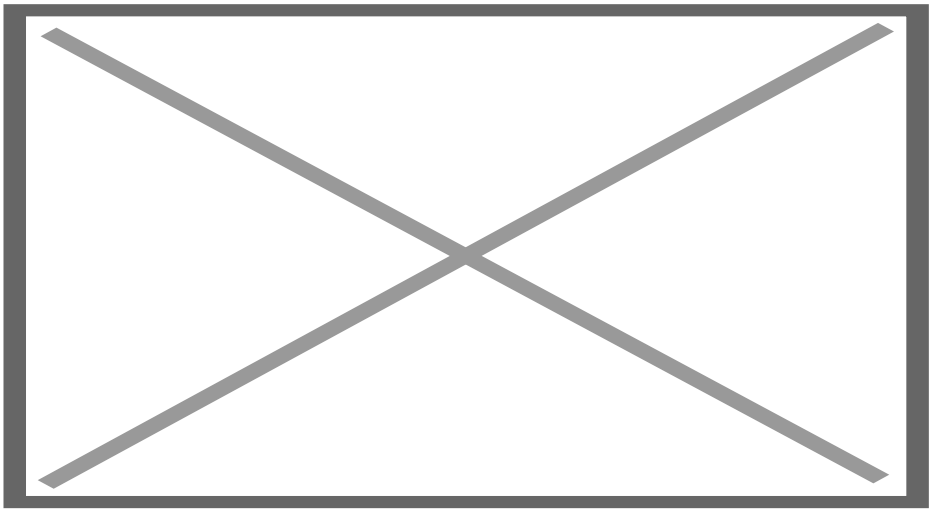

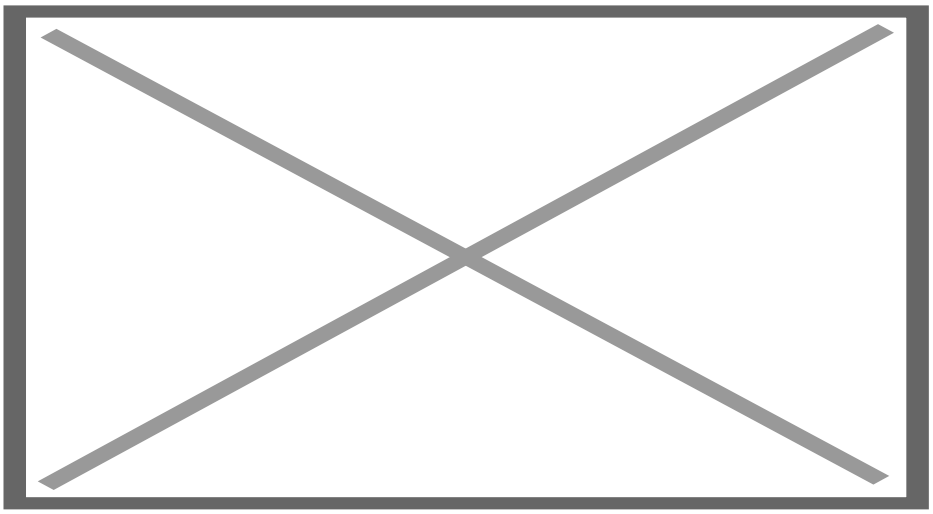

Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Future technicians and engineering assistants are trained to design, industrialize, and oversee mechanical and multi-technology products or systems within an industrial context.

The program develops strong skills in key areas of mechanical engineering: mechanical design, material selection, manufacturing methods, quality control, robotics, and industrial organization and management. Students acquire a comprehensive understanding of the product lifecycle—from needs analysis to production and optimization of industrial processes.

The BUT GMP prepares students to:

- Analyze and respond to industrial needs by designing innovative, sustainable, and tailored mechanical solutions;
- Master computer-aided design (CAD) tools and mechanical simulation software;
- Select and implement appropriate manufacturing processes, considering technical, economic, and environmental constraints;
- Organize, manage, and optimize industrial production while meeting quality, safety, and deadline requirements.

Among the five national specializations (“parcours”), the IUT of Cachan offers three to provide additional focus:

- “Numerical Simulation and Virtual Reality”, including digital twins and industrial robotics;
- “Industrial Process Management”, focusing on industrial organization and control;
- “Innovation for Industry”, dedicated to developing complex design and manufacturing methods and processes.

Strongly connected to the professional world through supervised projects, internships, and the option of work-study training, graduates of the BUT GMP also develop a broad set of soft skills and professional attitudes, including teamwork, autonomy, adaptability, and effective communication in both English and French.

These competencies make BUT GMP graduates versatile and operational professionals, ready to meet the challenges of contemporary industry both in France and internationally.

Objectives

The **Bachelor in Mechanical and Production Engineering (BUT GMP)** aims to train professionals over three years who are capable of designing, developing, industrializing, and optimizing mechanical products or systems to meet the evolving needs of industry sectors and professions.

Key sectors include aerospace, transportation (automotive, rail, naval), precision mechanics and tooling, robotics, and transformation industries (plastics, metallurgy, etc.). Thanks to the program’s versatility, graduates can also pursue careers in diverse fields such as energy, special machinery, construction and metal structures, agri-food, and medical industries.

This comprehensive program provides students with a global understanding of mechanical and multi-technology systems, industrial processes, and the technical, economic, and organizational aspects specific to industry. Students gain the skills to manage the full product lifecycle — from needs analysis and design to production implementation and continuous improvement.

The BUT GMP program is designed to continuously adapt to contemporary industrial challenges: technological innovation, industrial performance, energy transition, digitalization, and sustainable development. It prepares students to operate effectively in various industrial contexts, promoting an integrated approach to design, industrialization, and production functions.

Built on a practical, project-based, and internship-driven pedagogy, the program equips graduates with strong operational capabilities, adaptability, and the ability to grow within industrial environments.

In addition, the BUT GMP program serves a dual purpose: enabling direct entry into mechanical and production-related careers, while also providing a solid academic foundation for further studies in engineering schools or master's programs.

Admission

Capacity

Available Places

0
Programme

BUT3 GMP, parcours Simulation Numérique et Réalité Virtuelle - Formation Initiale

Spécifier les exigences technico-économiques industrielles (BUT3 GMP)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.1 (BUT3 GMP)	4	Semestre 1							

UE 5.1 (BUT3 GMP)

ECTS : 4
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

UE 6.1 (BUT3 GMP)	4	Semestre 2							

UE 6.1 (BUT3 GMP)

ECTS : 4
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Déterminer la solution conceptuelle (BUT3 GMP)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.2 (BUT3 GMP)	8	Semestre 1							

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours

UE 5.2 (BUT3 GMP)

ECTS : 8
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

UE 6.2 (BUT3 GMP)	6	Semestre 2

UE 6.2 (BUT3 GMP)

ECTS : 6
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Concrétiser la solution technique retenue (BUT3 GMP)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.3 (BUT3 GMP)	8	Semestre 1							

UE 5.3 (BUT3 GMP)

ECTS : 8
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 6.3 (BUT3 GMP)	7	Semestre 2							

UE 6.3 (BUT3 GMP)

ECTS : 7
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Gérer le cycle de vie du produit et du système de production (BUT3 GMP)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.4 (BUT3 GMP)	4	Semestre 1							

UE 5.4 (BUT3 GMP)

ECTS : 4
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

UE 6.4 (BUT3 GMP)	6	Semestre 2							

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours

UE 6.4 (BUT3 GMP)

ECTS : 6
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Virtualiser un produit mécanique ou un process du concept au jumeau numérique selon les besoins de l'usine du futur (BUT3 GMP SNRV)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.5 (BUT3 GMP SNRV)	6	Semestre 1							

UE 5.5 (BUT3 GMP SNRV)

ECTS : 6
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

UE 6.5 (BUT3 GMP SNRV)	7	Semestre 2							

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours

UE 6.5 (BUT3 GMP SNRV)

ECTS : 7
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

BUT3 GMP, parcours Simulation Numérique et Réalité Virtuelle - Formation en Apprentissage

Spécifier les exigences technico-économiques industrielles (BUT3 GMP)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.1 (BUT3 GMP)	4	Semestre 1							

UE 5.1 (BUT3 GMP)

ECTS : 4
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

UE 6.1 (BUT3 GMP)	4	Semestre 2							

UE 6.1 (BUT3 GMP)

ECTS : 4
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Déterminer la solution conceptuelle (BUT3 GMP)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.2 (BUT3 GMP)	8	Semestre 1							

UE 5.2 (BUT3 GMP)

ECTS : 8
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

UE 6.2 (BUT3 GMP)	6	Semestre 2							

UE 6.2 (BUT3 GMP)

ECTS : 6
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Concrétiser la solution technique retenue (BUT3 GMP)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.3 (BUT3 GMP)	8	Semestre 1							

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours

UE 5.3 (BUT3 GMP)

ECTS : 8
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

UE 6.3 (BUT3 GMP)	7	Semestre 2

UE 6.3 (BUT3 GMP)

ECTS : 7
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Gérer le cycle de vie du produit et du système de production (BUT3 GMP)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.4 (BUT3 GMP)	4	Semestre 1							

UE 5.4 (BUT3 GMP)

ECTS : 4
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 6.4 (BUT3 GMP)	6	Semestre 2							

UE 6.4 (BUT3 GMP)

ECTS : 6
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Virtualiser un produit mécanique ou un process du concept au jumeau numérique selon les besoins de l'usine du futur (BUT3 GMP SNRV)

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
UE 5.5 (BUT3 GMP SNRV)	6	Semestre 1							

UE 5.5 (BUT3 GMP SNRV)

ECTS : 6
Semester: Semestre 1
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

UE 6.5 (BUT3 GMP SNRV)	7	Semestre 2							

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours

UE 6.5 (BUT3 GMP SNRV)

ECTS : 7
Semester: Semestre 2
Language(s) of instruction
Français
Remote teaching
non
Type of assessment
Evaluation Continue Intégrale

Teaching Location(s)

CACHAN

Training campus

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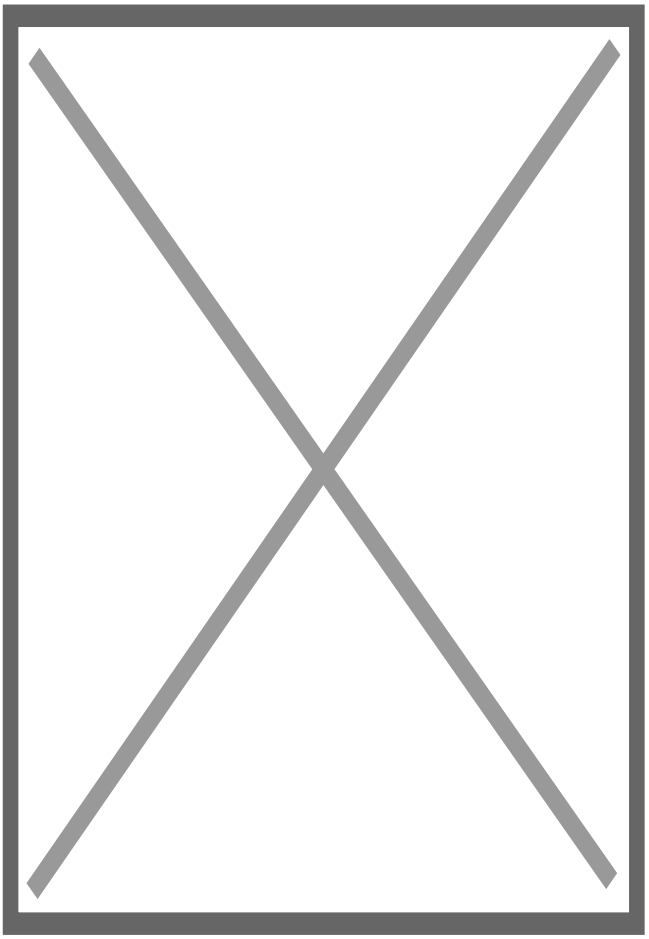

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Voir
Student restaurant (CROUS)
Student residence
Sports facilities

Contact

- **François Thiebaut**
- **Sylvain LAVERNHE**

http://institut-pascal.universite-paris-saclay.fr/formation/genie-mecanique-et-productique/but3-genie-mecanique-et-productique-simulation-numerique-et-realite-virtuelle