

SCIENCES, INGÉNIERIE ET TECHNOLOGIES

MASTER GREEN CHEMISTRY AND PROCESSES FOR RENEWABLE FEEDSTOCKS

Ingénierie des systèmes complexes



Niveau d'étude
visé
BAC +5



Diplôme
Master (LMD)



Domaine(s)
d'étude
Génie
biochimique,
Génie de
l'environnement,
Génie des
procédés



Accessible en
Formation
continue,
Formation
initiale, VAE



Établissements
INP - ENSIACET

Parcours proposés

- MASTER GREEN CHEMISTRY AND PROCESSES FOR RENEWABLE FEEDSTOCKS M1
- MASTER GREEN CHEMISTRY AND PROCESSES FOR RENEWABLE FEEDS M2

Présentation

Mentored projects and experimental project are performed in one of the three laboratory partnership of the master, or in a laboratory of a partnership institution (INSA).

Projects and internships are in the fields of green chemistry and processes, or biotechnology / bioprocesses

- Internship of first year: between 8 weeks and 2 months
- Graduation internship (master Thesis): between 5 and 6 months, in Industry or in a R&D center.

Objectifs

The Master Green CAP represents a specialization dedicated to the development of safe and sustainable processes from renewable raw materials, for industrial applications.

The program focuses on the area of the conversion of renewable resources by chemical or biochemical reactions or by physical processes; the courses deal with the knowledge of vegetable raw materials, the set up of the chemical reaction and its catalysis, the operation of the biological reaction (enzymatic or fermentation) and the separation processes that result. The approach integrates practices in green chemistry and clean processes involving innovating technologies, which take into account environmental impacts, from the starting materials to the end products.

Savoir-faire et compétences

- Implementing clean technologies in catalysis, biotechnology and green chemistry,
- Designing chemical production processes, biochemical, pharmaceutical, cosmetic, in a strategy of sustainable development and energy management.
- Monitoring and optimizing the efficiency of the process in terms of specifications (productivity, economy, energy

efficiency, environmental impact, hygiene regulations, health and environment).

- Evaluating the impacts / environmental gains associated with transformation (bio) chemical,
- Mastering the conversion route of biomass, with an approach of Biorefinery,
- Developing bio-products and fine chemical products, functional, innovative and safe, with an ecodesign methodologies,
- Up-dating of a technological and regulatory information to incorporate new processes and materials, and to anticipate new standards,
- Writing test reports, manufacturing protocols, briefing notes,
- Dissemination of knowledge (writing reports or articles, oral presentations, etc.).
- Managing projects and work in a multidisciplinary team.

Infos pratiques

Lieu(x)

 Toulouse

Admission

Conditions d'admission

Required level : Bachelor of Science / Engineering degree / 4 years of education , in the fields of chemical engineering, Chemistry, bioprocesses.

Et après...

Insertion professionnelle

The placement opportunities are mainly in the areas of research and development, production, engineering, consulting or environmental assessment for international companies.

corresponding to the following jobs : R&D engineer, production engineer, (bio)process engineer, product formulation engineer, project manager, innovation supervisor...

Programme

MASTER GREEN CHEMISTRY AND PROCESSES FOR RENEWABLE FEEDSTOCKS

M1

	Nature	CM	TD	TP	Crédits
M1 Green Cap Moyenne Générale	UE				
M1 Green Cap Moyenne 1er Semestre	UE				30
UE1 Communication & Recherche	UE				9
UE2 Opérations Unitaires pour les Procédés Industriels	UE				8
UE3 Phénomènes de Transfert de Masse	UE				5
UE4 Enseignement Optionnel : Chimie Verte	UE				8
M1 Green Cap Moyenne 2ème Semestre	UE				30
UE1 Tools for green Chemistry	UE				8
2A2S CH-M1 Green Cap Concepts de la chimie verte	UE				
2A2S CH-M1 Green Cap Analyse de cycle de vie et bilan carbone	UE				
M1 Green Cap Intro Green chemistry	UE				
M1 Green Cap Biochemistry	UE				
M1 Green Cap Biochemistry ECRIT	UE				
M1 Green Cap Biochemistry ORAL	UE				
M1 Green Cap Chemistry for the environment	UE				
M1 Green Cap Ch. et Génie Ch. pour une industrie durable	UE				
2A2S Fise/Fisa GC/GP - M1 Green Cap Indus Dura. Part I	UE				
UE2 Sustainable process	UE				10
2A2S CH-Green Cap Procédés de séparation (Opé. unitaires)	UE				
2A2S CH-M1 Green Cap TP Pilotes Gpe 10	UE				
2A2S CH-GC-Fisa GC-M1 Green Cap Micro et milli réacteurs	UE				
2A2S CH-M1 Green Cap Biochimie, TP Biotechnologie	UE				
2A2S GC-M1 Green Cap Catalyse pour le développement durable	UE				
2A2S Fisa GC-M1 Green Cap TP Micro et milli - réacteurs	UE				
M1 Green Cap Industrial chemistry	UE				
UE3 Polymer Sciences	UE				4
M1 Green Cap Chemistry of polymers	UE				
M1 Green Cap Physico-chemistry of polymers	UE				
UE4 Professionalization	UE				8
M1 Green Cap French language (FLE)	UE				
M1 Green Cap Experimental Project	UE				
M1 Green Cap Internship	UE				

MASTER GREEN CHEMISTRY AND PROCESSES FOR RENEWABLE FEEDS M2

	Nature	CM	TD	TP	Crédits
M2 Green Cap Moyenne Générale	UE				
M2 Green Cap Moyenne 2ème Semestre	UE				30
TU Internship : 5 to 6 months	UE				30
Internship	UE				
M2 Green Cap Moyenne 1er Semestre	UE				30
TU1 Tools in green chemistry and processes	UE				4
3A CVeBio-CFiBio-Green Cap Ch&Gén Ch pour une industrie dur.	UE				
3A CFiBio-CVeBio-Green Cap Cours introductif	UE				
3A CVeBio-Green Cap Mat Prem Végétales & Etude de Cas	UE				
3A CVeBio-CFiBio-Green Cap Mat prem végé : prop et carac.	UE				
3A CVeBio-Green Cap Etude de cas	UE				
TU2 Bioprocesses	UE				4
3A CVeBio-CFiBio-Green Cap Catalyse enzymatique	UE				
3A CVeBio-CFiBio-Green Cap Bioréacteurs	UE				
3A CVeBio-Green Cap TP Fermentation	UE				
TU3 Formulation	UE				4
3A CVeBio-CFiBio-Green Cap Méthodes de formulation	UE				
3A CVeBio-CFiBio-Green Cap Etat Colloïdal	UE				
3A CVeBio-CFiBio-Green Cap Applications polymères	UE				
3A CVeBio-CFiBio-Green Cap Applications cosmétique	UE				
3A CVeBio-CFiBio-Green Cap Applications galénique	UE				
3A CVeBio-Green Cap TP Formulation	UE				
TU4 Conception of Bioproducts	UE				4
3A CVeBio-Green Cap TP Chimie Verte	UE				
3A CVeBio-Green Cap TP Chimie verte et biosourcée	UE				
3A CVeBio TP Chimie verte et catalyse	UE				
Oral TU4 Conception of Bioproducts	UE				
3A CVeBio-Green Cap-CDen Ecoconcept & recyclage produits	UE				
3A CVeBio-Green Cap Séminaire Ecoconception	UE				
3A CVeBio-Green Cap-CDen Bioraffinerie: fillères agro-ind.	UE				
3A CVeBio-Green Cap Transport & réac en milieux poreux	UE				
3A CVeBio-Green Cap-CDen Dév. de bioproducts fonctionnels	UE				
3A CVeBio-Green Cap Dév. d'agromatériaux et bioplastiques	UE				
TU5 Catalysis for alternative energies	UE				4
3A CVeBio écrit QCM Catalyse et Energie UE5	UE				
3A CVeBio-CHV-Green Cap Introduction / énergies alternatives	UE				
3A CVeBio-CHV-Green Cap Photovoltaïque	UE				
3A CVeBio-CHV-Green Cap Piles à combust (électrocatalyse)	UE				
3A CVeBio-CHV-Green Cap L'hydrogène (synth, stock & valor)	UE				
3A CVeBio-Green Cap-CDen Energies Biosourcées	UE				
3A CVeBio-Green Cap Cata pour la biomasse	UE				
3A CVeBio-CHV-Green Cap Activation catalyt et stock du CO2	UE				
TU6 Experimental Project	UE				10
Experimental Project	UE				