EENG - Year 5

Semester 9

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Engineering Internship S9

Engineering Internship S9

Données Générales			
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**		Responsable(s) Module DELAVERNHE Severine
Type de module : Unité d'Enseignement	**Engineering Internship S9** (LIIEEng09EngInternshipS9)		
Crédits (ECTS)	30		
Effectif maximum	250		
Durée totale : 0h00	Periode Semester 9	Langue d'enseignement :	

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Engineering Internship S9
- Engineering Internship S9

Engineering Internship S9

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : DELAVERNHE Severine
Type d'EC : Cours	**Engineering Internship S9** (LIIEEng09enginternshipS9)			
	Statut	Periode Semester 9	Langue d'enseignement :	

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Capstone

Capstone

Données Générales			
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**		Responsable(s) Module
Type de module : Unité d'Enseignement	**Capstone** (LIIEEng09UCap)		
Crédits (ECTS)	7		
Effectif maximum	250		
Durée totale : 100h00	Periode Semester 9	Langue d'enseignement :	

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Capstone
- Capstone Climate Transformation Institute

Capstone Climate Transformation Institute

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : DAVAL Gauthier
Type d'EC : Cours	**Capstone Climate Transformation Institute** (LIIEEng09ECapITC)			
Projet : 100h00 Durée totale: 100h00	Statut	Periode Semester 9	Langue d'enseignement :	

Acquis d'apprentissage

Upon successful completion of this course, students will be able to:

1- Analyze a real or simulated production system using lean and sustainable production frameworks (Kaizen, Jidoka, Just-In-Time, Lean & Green).

2- Evaluate the environmental, organizational, and social impacts of existing production processes.

3- Integrate knowledge from operations management, change management, and environmental sustainability to design improvements to a production system.

4- Formulate a coherent and research-backed transformation plan that aligns with both lean and climate-responsible production principles.

5- Apply relevant research methods to collect, interpret, and synthesize data for a complex production system analysis.

6- Design and justify strategic interventions that enhance efficiency and sustainability across a value chain.

7- Communicate their findings in a well-structured, academically rigorous thesis that reflects critical thinking, autonomy, and project ownership.

Contenu

The Capstone ITC project is the culminating experience of the semester, requiring students to integrate and apply knowledge from all core modules in the ITC curriculum. The thesis centers on the analysis and transformation of a simulated or real-life production system, with a specific focus on lean manufacturing practices integrated with climate-conscious and sustainable production principles.

Students will write an individual thesis rooted in the simulation environment offered by the ITC (Institut de la Transformation Climat).

The student must develop a thesis that demonstrates their capacity to lead improvement and transformation initiatives in this context, encompassing:

Production efficiency

Environmental responsibility

Organizational and social dynamics of change

Prérequis

-Technological Environment

-OPERATIONS TRANSFORMATIONS FOLLOWING KAIZEN & LEARNING ORGANIZATION PRINCIPLES

-MANAGEMENT SYSTEM FOR LEADING CHANGE

-Transformation based on Lean Green Principles

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Management system for Leading change

Management system for Leading change

Données Générales			
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**		Responsable(s) Module RASOLOFOARISOA Andry
Type de module : Unité d'Enseignement	**Management system for Leading change** (LIIEEng09UManaLead)		
Crédits (ECTS)	4		
Effectif maximum	250		
Durée totale : 54h00	Periode Semester 9	Langue d'enseignement :	

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Management system for Leading change
- Change Strategies in a Corporate Environment

Change Strategies in a Corporate Environment

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Change Strategies in a Corporate Environment** (LIIEEng09EChangStratCorpoEnvi)			
TD : 4h00 Cours : 12h00 Durée totale: 16h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the principles and frameworks that guide organizational change strategies in corporate contexts.

Assess the complexity of change through relational and technical dimensions.

Select the most appropriate change strategy based on organizational context, stakeholder dynamics, and transformation objectives.

Apply established change management frameworks to plan and justify strategic decisions.

Develop critical thinking and communication skills to design and present coherent, evidence-based change strategies.

Contenu

Overview of corporate transformation and the strategic role of change management.

Typologies of change strategies: directive, participative, incremental, transformational, and adaptive approaches.

Factors influencing the choice of strategy:

Relational complexity (stakeholders, culture, communication networks).

Technical complexity (process interdependence, technological innovation).

Organizational maturity and readiness for change.

Comparative analysis of change frameworks (Kotter, Lewin, ADKAR, Bridges).

Aligning change strategy with business goals and organizational resilience.

Tutorials:

Compare different real or hypothetical projects to evaluate the suitability of various change approaches.

Design and present a comprehensive corporate change strategy, justifying choices using change models and anticipating potential challenges.

Prérequis
Pre-requisite: Social Dynamics of change

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Management system for Leading change
- Management routines in a Learning Organisation

Management routines in a Learning Organisation

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Management routines in a Learning Organisation** (LIIEEng09EManaRoutLearnOrga)			
TD : 4h00 Cours : 6h00 Durée totale: 10h00	Statut	Periode Semester 9	Langue d'enseignement :	

Acquis d'apprentissage

Understand the principles of a learning organization and their application in continuous improvement environments.

Design and lead a management system that supports operational excellence through structured routines and communication channels.

Implement effective team huddles, strategic KPI breakdown, and catchball processes to align strategic goals with daily operations.

Facilitate and lead problem-solving meetings to foster collective learning and performance improvement.

Strengthen managerial behaviors promoting accountability, collaboration, and the dissemination of know-how.

Contenu

Definition and characteristics of a learning organization.

Role of management routines in sustaining lean systems (Standardized Work, Jidoka, and Just-In-Time).

Components of the management system:

Team huddles and daily performance management.

Strategic KPI breakdown – linking vision to execution.

Catchball process – two-way communication for objective alignment.

Methods for problem-solving leadership: structuring issue escalation, using A3 reports, and engaging teams in root cause analysis.

Visual management and knowledge-sharing tools for continuous learning.

Development of managerial attitudes promoting empowerment and reflection.

Prérequis

Basic Knowledge of Industrial Organization

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1		1	Practical work

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Management system for Leading change
- Problem-Solving with PDCA

Problem-Solving with PDCA

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Problem-Solving with PDCA** (LIIEEng09EPDCA)			
TD : 4h00 Cours : 8h00 Durée totale: 12h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the PDCA (Plan–Do–Check–Act) cycle as a structured method for continuous improvement and problem-solving.

Apply the PDCA framework to systematically identify, analyze, and address operational issues.

Use analytical tools such as the 5 Whys, brainstorming, and root cause analysis to design effective corrective actions.

Evaluate the effectiveness of implemented solutions and standardize successful improvements to sustain results.

Collaborate in team-based problem-solving initiatives to enhance product quality and process reliability.

Contenu

Introduction to PDCA: philosophy, cycle phases, and role in continuous improvement.

Detailed exploration of each PDCA phase:

Plan: Define the problem, analyze root causes, and plan countermeasures.

Do: Implement actions on a trial basis or within pilot conditions.

Check: Measure outcomes and compare with expected results.

Act: Standardize, share learnings, and deploy improvements.

Practical tools and techniques supporting PDCA:

5 Whys analysis, Ishikawa (Fishbone) diagrams, and brainstorming methods.

Integration of PDCA within the lean management system for quality improvement.

Case Study: Addressing a rise in defective products through PDCA-based analysis and improvement.

Simulation (Assessment for 2.1 & 2.2): Apply the PDCA cycle in a Clock Assembly production line, document each phase, and present the performance gains achieved.

Prérequis
Basic Knowledge of Industrial Organization

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1		1	Practical work

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Management system for Leading change
- Skills Management

Skills Management

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Skills Management** (LIIEEng09ESkillMana)			
TP : 4h00 Cours : 4h00 Durée totale: 8h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the principles of Skills Management and Training Within Industry (TWI) as foundations for workforce development and operational efficiency.

Design and implement effective, standardized training strategies for new employees to ensure rapid skill acquisition and integration.

Apply TWI Job Instruction (JI) methodology to structure and deliver clear, consistent training at the workstation level.

Assess and audit the quality and effectiveness of training programs using measurable performance indicators.

Foster a learning culture that supports continuous improvement and skill standardization across teams.

Contenu

Introduction to Skills Management and its strategic importance in industrial performance.

Overview of TWI programs: Job Instruction (JI), Job Methods (JM), and Job Relations (JR).

Key elements of effective training design: analysis of tasks, standardization, and knowledge transfer.

Steps of the TWI Job Instruction method: prepare the worker, present the operation, try out performance, and follow up.

Techniques for skill assessment, feedback, and program auditing.

Integration of training processes into continuous improvement systems and lean culture.

Tutorials / Practical Application:

Production workshop simulation: Train newcomers on a manual process, applying TWI Job Instruction methods to ensure understanding, standardization, and mastery.

Prérequis

No prerequisite

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1			

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Management system for Leading change
- Social Dynamics of Change

Social Dynamics of Change

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Social Dynamics of Change** (LIIEEng09ESociDynaChan)			
TD : 4h00 Cours : 4h00 Durée totale: 8h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the social dimension of organizational change, including how individuals and groups respond to transformation.

Analyze factors that influence employee engagement, communication effectiveness, and resistance management during change initiatives.

Develop interpersonal and leadership skills to foster buy-in, collaboration, and trust within teams.

Apply communication and facilitation strategies to support smooth transitions and sustainable change adoption.

Reflect critically on change management practices and their impact on organizational culture and performance.

Contenu

Overview of organizational change and its psychological and social implications.

Key concepts: employee engagement, motivation, resistance to change, and change readiness.

Communication strategies to support transformation: transparency, active listening, feedback loops, and empathy.

Leadership behaviors that encourage participation, trust, and shared ownership of change.

Group dynamics analysis: understanding team reactions and identifying hidden barriers to adoption. Tutorials/Practical Applications:

Role-play: Simulate team meetings to practice engagement and resistance management strategies.

Group discussion: Analyze real-world case studies highlighting critical social factors in change success.

Assessment: Reflection report examining stakeholder behavior and evaluating engagement and communication effectiveness in a chosen organizational change scenario.

Prérequis

No prerequisite

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1		1	Practical work

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Operations transformations following Kaizen and Learning Organisation Principles

Operations transformations following Kaizen and Learning Organisation Principles

Données Générales			
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**		Responsable(s) Module RASOLOFOARISOA Andry
Type de module : Unité d'Enseignement	**Operations transformations following Kaizen and Learning Organisation Principles** (LIIEEng09UOpeKaiLOP)		
Crédits (ECTS)	7		
Effectif maximum	250		
Durée totale : 90h00	Periode Semester 9	Langue d'enseignement :	

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Operations transformations following Kaizen and Learning Organisation Principles
- Jidoka

Jidoka

Données Générales

Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Jidoka** (LIIEEng09EJidoka)			
TD : 8h00 Cours : 8h00 Durée totale: 16h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the concept of Jidoka and its role in ensuring built-in quality within a lean production system.

Develop the ability to design and manage production flows that autonomously detect and respond to quality issues.

Apply Jidoka principles to prevent defects, enhance process reliability, and empower operators in problem-solving.

Evaluate production performance through practical simulation of quality control processes.

Contenu

Definition and principles of Jidoka (“automation with a human touch”).

Historical context: Jidoka in the Toyota Production System.

Key components:

Autonomation (machines detecting abnormalities and stopping automatically).

Visual control and andon systems for immediate response to quality issues.

Root cause analysis and corrective action processes.

Integration of Jidoka into production flow and quality management systems.

Impact on safety, productivity, and continuous improvement (Kaizen).

Workshop simulation: Manufacture of a product to apply Jidoka principles and quality control during production.

Prérequis

Basic knowledge of Industrial Organization

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1		1	Practical work

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Operations transformations following Kaizen and Learning Organisation Principles
- Just in Time

Just in Time

Données Générales

Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Just in Time** (LIIEEng09EJustInTime)			
TD : 8h00 Cours : 12h00 Durée totale: 20h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the principles of high-performance production systems focused on lead time reduction and inventory optimization.

Develop the ability to design efficient production flows integrating lean tools and flow management techniques.

Analyze and manage production constraints to balance workflow, minimize waiting time, and improve responsiveness.

Apply performance metrics (lead time, work-in-process, throughput) in a simulated production environment.

Contenu

Concepts of production flow performance and value stream efficiency.

Relationship between lead time, inventory, and customer demand.

Techniques for optimizing production flow:

Pull systems (Kanban, Just-In-Time).

Flow leveling (Heijunka) and workload balancing.

Bottleneck analysis and cycle time reduction.

Tools for monitoring and improving flow performance (VSM, visual management boards, flow metrics).

Simulation exercise: Manufacturing product to evaluate flow design, lead time, and inventory control.

Prérequis

Basic Knowledge of Industrial Organization and Supply chain

Évaluation(s)

N°	Nature	Coefficient	Objectifs
1		1	Practical work

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Operations transformations following Kaizen and Learning Organisation Principles
- Standardised Work

Standardised Work

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Standardised Work** (LIIEEng09EStandWork)			
TD : 4h00 Cours : 4h00 Durée totale: 8h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the principles and objectives of standardized work within a lean production system.

Develop the ability to design, document, and analyze standardized work at a workstation.

Apply standardized work methods to optimize production flow, balance workloads, and ensure consistency in operations.

Use standardized work tools (work standard sheet, standardized work combination table, and standardized work diagram) to support continuous improvement and training.

Contenu

Definition and importance of standardized work in lean manufacturing.

Components of standardized work: takt time, work sequence, standard inventory.

Steps for establishing standardized work at a workstation.

Tools and documents for standardized work:

Work standard sheet (describes the most efficient method).

Standardized work combination table (illustrates the relationship between manual work and machine time).

Standardized work diagram (visual layout of operator movements and workflow).

Role of standardized work in maintaining quality, productivity, and safety.

Practical exercises: drafting standardized work documentation for a given production station.

Prérequis

Basic Knowledge of Industrial Organization

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1		1	Practical work

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Operations transformations following Kaizen and Learning Organisation Principles
- Value Stream Design

Value Stream Design

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Value Stream Design** (LIIEEng09EValStrDesign)			
TD : 4h00 Cours : 4h00 Projet : 38h00 Durée totale: 46h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the concept and strategic importance of value chain transformation in industrial systems.

Diagnose the current performance of an industrial system using mapping and analytical tools (such as VSM and process mapping).

Identify key performance gaps and prioritize improvement opportunities.

Design a future state of the value chain aligned with strategic objectives.

Propose and plan transformation initiatives through A3 problem-solving, SWOT analysis, and gain/effort matrices.

Justify transformation proposals with evidence-based reasoning and structured project planning.

Contenu

Introduction to value chain thinking and system-level performance optimization.

Methods for diagnosing industrial performance:

Value Stream Mapping (VSM) and process flow analysis.

Identification of non-value-added activities and bottlenecks.

Designing the future state map: lean targets, resource optimization, and customer value alignment.

Tools for transformation projects:

A3 project management and problem-solving framework.

SWOT analysis for strategic alignment.

Gain/effort matrices for prioritization of improvement actions.

Structuring and sequencing transformation projects into actionable sub-projects.

Assessment: Value Chain Transformation Project – Case Study applying the full diagnostic and redesign process.

Prérequis
Basic Knowledge of Industrial Organization and supply chain Knowledge of Lean Management principles: Jidoka, Standardized Work, Just-in-Time

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1		1	Project

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Technological Envrionment

Technological Envrionment

Données Générales			
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**		Responsable(s) Module MONAGHAN Erin
Type de module : Unité d'Enseignement	**Technological Envrionment** (LIIEEng09UTechEnv)		
Crédits (ECTS)	7		
Effectif maximum	250		
Durée totale : 100h00	Periode Semester 9	Langue d'enseignement :	

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Technological Envrionment
- Complex Project Management

Complex Project Management

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : MONAGHAN Erin
Type d'EC : Cours	**Complex Project Management** (LIIEEng09ECompProjMana)			
Cours : 10h00 Projet : 20h00 Durée totale: 36h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

- Defend decisions in terms of project initiation, planning, execution, monitoring, and closure
- Interpret financial data in regards to budgeting, financial forecasting, and cost control in the context of large projects
- Evaluate and selecte the right tools for complex projects

Contenu

This course aims to provide engineering students with advanced skills and knowledge required to manage complex projects. The course will cover project planning, risk management, stakeholder engagement, and the use of advanced project management tools and techniques.

Week 1: Introduction to Complex Project Management (2 hours)
Session 1: Fundamentals of Complex Projects (1 hour)
• Definition and characteristics of complex projects
• Differences between simple and complex project management
• Examples of complex engineering projects
Session 2: Project Lifecycle and Phases (1 hour)
• Project initiation, planning, execution, monitoring, and closure
• Key activities and deliverables in each phase
• Case studies of complex project lifecycles
Week 2: Advanced Planning and Scheduling (2 hours)
Session 3: Advanced Project Planning Techniques (1 hour)
• Work Breakdown Structure (WBS)
• Critical Path Method (CPM)
• Program Evaluation and Review Technique (PERT)
Session 4: Scheduling and Resource Allocation (1 hour)
• Gantt charts and network diagrams
• Resource leveling and allocation strategies
• Tools for scheduling and resource management (e.g., MS Project)
Week 3: Risk Management and Mitigation (2 hours)
Session 5: Identifying and Assessing Risks (1 hour)
• Types of risks in complex projects
• Risk identification techniques (e.g., SWOT analysis, brainstorming)
• Risk assessment and prioritization
Session 6: Risk Mitigation Strategies (1 hour)
• Risk response planning
• Contingency planning and management
• Case studies of risk management in complex projects
Week 4: Stakeholder Engagement and Communication (2 hours)
Session 7: Stakeholder Analysis and Management (1 hour)

Contenu

• Identifying stakeholders and their interests
• Stakeholder mapping and analysis
• Strategies for effective stakeholder engagement
Session 8: Communication Strategies for Complex Projects (1 hour)
• Communication planning and execution
• Tools and technologies for project communication
• Best practices for managing communication in complex projects
Week 5: Advanced Project Management Tools and Techniques (2 hours)
Session 9: Utilizing Advanced PM Tools (1 hour)
• Overview of advanced project management software (e.g., Primavera, MS Project)
• Integrating tools into project workflows
• Evaluating and selecting the right tools for complex projects
Session 10: Agile and Hybrid Methodologies (1 hour)
• Introduction to Agile project management
• Hybrid methodologies combining Agile and traditional approaches
• Case studies of Agile and hybrid project management in engineering

Prérequis

None

Bibliographie

Suggested Reading
1. "Successfully Designing and Managing Complex Projects" by Olivier de Weck and James Lyneis
.
2. "Project Management from Simple to Complex" by University of Minnesota Libraries Publishing
.
3. "Strategic Management of Complex Projects" by James Lyneis, Kenneth Cooper, and Sharon Els

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Évaluation(s)

N°	Nature	Coefficient	Objectifs
1	Project	1	- Defend decisions in terms of project initiation, planning, execution, monitoring, and closure - Interpret financial data in regards to budgeting, financial forecasting, and cost control in the context of large projects - Evaluate and selecte the right tools for complex projects

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Technological Envrionment
- Environmental regulatory context

Environmental regulatory context

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : MONAGHAN Erin
Type d'EC : Cours	**Environmental regulatory context** (LIIEEng09EEnvRegCont)			
Cours : 20h00 Projet : 10h00 Durée totale: 30h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

• Understand the historical development of global environmental regulations.
• Analyze major international environmental agreements and policies.
• Explore the roles of various global institutions and organizations.
• Understand the historical development of EU environmental policy.
• Analyze key EU environmental directives and regulations.
• Explore the role of EU institutions in environmental governance.
• Examine case studies on the implementation and enforcement of international environmental laws.

Contenu

This course provides a comprehensive overview of global environmental regulatory frameworks, focusing on key international agreements, policies, and the role of global institutions. It covers the development, implementation, and enforcement of environmental regulations at the international level. It also provides an in-depth understanding of the European Union's environmental regulatory framework. It covers key EU environmental policies, directives, and regulations, as well as the institutional structures and processes involved in environmental governance.

Module 1: Introduction to Global Environmental Regulation & EU Environmental Policy
• History and evolution of global environmental regulation
• Overview of global institutions and their roles
• History and evolution of EU environmental policy
• Overview of EU institutions involved in environmental governance
• Key principles and objectives of Environmental Policies and Regulations
Module 2: Major International Environmental Agreements
• United Nations Framework Convention on Climate Change (UNFCCC)
• Convention on Biological Diversity (CBD)
• Basel Convention on the Control of Transboundary Movements of Hazardous Wastes
• Paris Agreement
• Kyoto Protocol
Module 3: EU Environmental Directives and Regulations
• Water Framework Directive
• Waste Framework Directive
• Air Quality Directive
• Habitats Directive
• Climate Change Legislation
Module 4: Implementation and Enforcement
• Mechanisms for implementation at the international level
• Role of international courts and tribunals
• Case studies on enforcement and compliance
Module 5: Current Challenges and Future Directions

Contenu

• Emerging global environmental issues
• Policy responses to climate change
• Future trends in global environmental regulation

Prérequis

None

Bibliographie

Recommended Reading:
• "Global Environmental Governance" by James Gustave Speth and Peter M. Haas
• "International Environmental Law and Policy" by David Hunter, James Salzman, and Durwood Zaelke
• "EU Environmental Law" by Ludwig Krämer
• "Environmental Policy in the European Union" by Andrew Jordan and Camilla Adelle
• Relevant international agreements and documents (available online)

Évaluation(s)

N°	Nature	Coefficient	Objectifs
1	Project	1	• Understand the historical development of global environmental regulations. • Analyze major international environmental agreements and policies. • Explore the roles of various global institutions and organizations. • Understand the historical development of EU environmental policy. • Analyze key EU environmental directives and regulations. • Explore the role of EU institutions in environmental governance. • Examine case studies on the implementation and enforcement of international environmental laws.

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Technological Envrionment
- Organisational Theory

Organisational Theory

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : MONAGHAN Erin
Type d'EC : Cours	**Organisational Theory** (LIIEEng09EOrgaTheo)			
Cours : 20h00 Durée totale: 20h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

- Master advanced strategic management concepts and organizational theories.
- Conduct comprehensive analyses of external and internal environments.
- Formulate and implement sophisticated strategic plans.
- Evaluate the impact of organizational structures and cultures on strategic outcomes.
- Apply theoretical concepts to complex, real-world business scenarios.

Contenu

This course delves into advanced concepts of strategic management and organizational theory, emphasizing critical analysis and application. It covers sophisticated frameworks and tools for strategic planning and organizational analysis, preparing students to tackle complex business challenges.

Block 1: Advanced Concepts in Strategy and Organizational Theory (4 hours)
- Evolution of Strategic Management and Organizational Theory
- Advanced Theoretical Frameworks
- Strategic Thinking and Decision Making
- Organizational Dynamics and Behavior

Block 2: In-Depth External Environment Analysis (4 hours)
- Advanced PESTEL Analysis
- Extended Porter's Five Forces Model
- Industry Life Cycle and Strategic Groups
- Case Study: Comprehensive External Environment Analysis

Block 3: In-Depth Internal Environment Analysis (4 hours)
- Dynamic Capabilities and Core Competencies
- Advanced VRIO Framework
- Value Chain Analysis
- Case Study: Comprehensive Internal Environment Analysis

Block 4: Strategic Formulation and Innovation (4 hours)
- Strategic Intent and Strategic Leadership
- Corporate Entrepreneurship and Innovation
- Blue Ocean Strategy and Disruptive Innovation
- Case Study: Formulating Innovative Strategies

Block 5: Strategy Implementation, Evaluation, and Change Management (4 hours)
- Advanced Organizational Design and Structure
- Cultural Transformation and Change Management
- Strategic Control and Performance Measurement
- Case Study: Implementing and Evaluating Strategic Change

Prérequis

None

Bibliographie

• "Competitive Advantage" by Michael E. Porter
• "Strategy Safari" by Henry Mintzberg, Bruce Ahlstrand, and Joseph Lampel
• "Reframing Organizations" by Lee G. Bolman and Terrence E. Deal

Évaluation(s)

N°	Nature	Coefficient	Objectifs
1	Project	1	• Master advanced strategic management concepts and organizational theories. • Conduct comprehensive analyses of external and internal environments. • Formulate and implement sophisticated strategic plans. • Evaluate the impact of organizational structures and cultures on strategic outcomes. • Apply theoretical concepts to complex, real-world business scenarios.

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Technological Envrionment
- Team Management in a technological environment

Team Management in a technological environment

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : MONAGHAN Erin
Type d'EC : Cours	**Team Management in a technological environment** (LIIEEng09ETeamManag)			
Cours : 20h00 Durée totale: 20h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

- Develop mangement strategies that align with organizational goals
- Apply knowledge of industrial transformation to management strategies
- Defend decisions regarding motivating teams, managing conflicts, and leading organizational change

Contenu

Block 1: Introduction to Team Management (4 hours)
Session 1: Understanding Team Dynamics (2 hours)
• Definition and importance of teams
• Stages of team development (Forming, Storming, Norming, Performing, Adjourning)
• Roles and responsibilities within a team
Session 2: Leadership in Technological Teams (2 hours)
• Leadership styles and their impact on team performance
• Characteristics of effective leaders in tech environments
• Case studies of successful tech leaders
Block 2: Communication and Collaboration (4 hours)
Session 3: Effective Communication Strategies (2 hours)
• Communication models and barriers
• Tools and technologies for team communication
• Best practices for virtual communication
Session 4: Fostering Collaboration and Innovation (2 hours)
• Techniques for promoting collaboration
• Managing conflicts within teams
• Encouraging creativity and innovation
Block 3: Technology's Impact on Team Management (4 hours)
Session 5: Technological Tools for Team Management (2 hours)
• Overview of collaboration tools (e.g., Slack, Microsoft Teams)
• Integrating technology into team workflows
• Evaluating and selecting the right tools for your team
Session 6: Managing Remote and Distributed Teams (2 hours)
• Challenges and benefits of remote teams
• Strategies for managing remote workers
• Case studies of successful remote teams
Block 4: Industrial Transformation (4 hours)
Session 7: Understanding Industrial Transformation
• Environnemental
• Digital

Contenu

• Economic, political and societal impacts
Block 5: Advanced Topics and Course Wrap-Up (4 hours)
Session 8: Advanced Team Management Techniques (2 hours)
• Emotional intelligence in team management
• Diversity and inclusion in tech teams
• Building a resilient team culture
Session 9: Course Review and Case Study Exercises (2 hours)
• Review of key concepts and takeaways
• Case study review
• Feedback and discussion

Prérequis

None

Bibliographie

The Five Dysfunctions of a Team" by Patrick Lencioni
• This book explores the common pitfalls that teams face and provides actionable strategies to overcome them.
"Team of Teams: New Rules of Engagement for a Complex World" by General Stanley McChrystal
• A great read on how to build adaptable and resilient teams in complex environments.
"Drive: The Surprising Truth About What Motivates Us" by Daniel H. Pink
• This book delves into the science of motivation and how it can be applied to team management.
"Remote: Office Not Required" by Jason Fried and David Heinemeier Hansson
• Essential for understanding the dynamics of remote teams and how to manage them effectively.

Évaluation(s)

N°	Nature	Coefficient	Objectifs
1	Project	1	- Develop mangement strategies that align with organizational goals - Apply knowledge of industrial transformation to management strategies - Defend decisions regarding motivating teams, managing conflicts, and leading organizational change

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Transformation based on Lean green principles

Transformation based on Lean green principles

Données Générales			
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**		Responsable(s) Module RASOLOFOARISOA Andry
Type de module : Unité d'Enseignement	**Transformation based on Lean green principles** (LIIEEng09UTransLean)		
Crédits (ECTS)	5		
Effectif maximum	250		
Durée totale : 56h00	Periode Semester 9	Langue d'enseignement :	

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Transformation based on Lean green principles
- Implementation of Change in INEXO

Implementation of Change in INEXO

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Implementation of Change in INEXO** (LIIEEng09EChangeINEXO)			
Projet : 40h00 Durée totale: 40h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Integrate knowledge from previous Lean Manufacturing modules to design and manage a complete production and logistics flow.

Apply Lean principles to optimize quality, ergonomics, lead time, inventory management, and problem-solving across the value chain.

Coordinate cross-functional improvements linking standardized work, Jidoka, Just-In-Time, and continuous improvement routines.

Evaluate production system performance through simulation, identifying improvement opportunities and applying effective countermeasures.

Demonstrate the ability to lead a Lean transformation project from analysis to implementation within a real or simulated industrial context.

Contenu

Overview of the INEXO system as a Lean learning environment.

Synthesis of Lean pillars:

Standardized Work for operational consistency.

Jidoka and Quality at the Source for defect prevention.

Just-In-Time and Flow Optimization for lead time reduction and smooth logistics.

Management Routines and PDCA Cycles for ongoing improvement and knowledge sharing.

Integration of sustainability and performance considerations (Lean & Green concepts).

Ergonomics and safety as enablers of performance and operator engagement.

Assessment:

Production simulation in the INEXO workshop: Skateboard production exercise applying Lean tools and management principles to design, operate, and continuously improve a full production system.

Prérequis

LIIEEng09EChanStra Change Strategies in a Corporate Environment
LIIEEng09EImplChang Implementation of Change in INEXO

Prérequis
LIIEEng09EManaRout Management routines in a Learning organization LIIEEng09EPbSolvPDCA Problem-Solving with PDCA LIIEXP09EJido Jidoka LIIEXP09EJustIn Just in Time LIIEXP09ESkilMana Skills Management LIIEXP09ESocDyn Social Dynamics of Change LIIEXP09EStandWor Standardized work LIIEXP09EVSD Value Stream Design

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1		1	Practical work

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 9
- Transformation based on Lean green principles
- Lean and Green

Lean and Green

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : RASOLOFOARISOA Andry
Type d'EC : Cours	**Lean and Green** (LIIEEng09ELeanGreen)			
TP : 6h00 Cours : 10h00 Durée totale: 16h00	Statut	Periode Semester 9	Langue d'enseignement : English	

Acquis d'apprentissage

Understand the relationship between Lean principles and environmental sustainability within industrial systems.

Integrate sustainability indicators into production management to support eco-efficient operations.

Monitor and analyze environmental performance through data-driven approaches aligned with lean methodologies.

Identify and implement opportunities to reduce waste, energy use, and carbon emissions without compromising productivity.

Apply Lean & Green concepts in practical contexts to design more sustainable and resilient production systems.

Contenu

Introduction to Lean & Green integration: aligning operational excellence with environmental responsibility.

Key sustainability pillars and metrics in production systems: energy consumption, waste, emissions, and resource efficiency.

Tools and methods for performance monitoring: Environmental Value Stream Mapping (EVSM), Life Cycle Thinking, and KPI design.

Strategies for implementing Green improvement projects using Lean tools (Kaizen, 5S, TPM, standardization).

Role of management systems and digital tools (ITC) in tracking sustainability performance.

Assessment:

Production simulation applying Lean & Green principles to optimize process efficiency and sustainability.

Case study on ITC integration to evaluate and improve environmental indicators within industrial operations.

Prérequis

Advanced knowledge in Industrial organization and Lean Manufacturing

Évaluation(s)			
N°	**Nature**	**Coefficient**	**Objectifs**
1		1	Practical work

Semester 10

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 10
- Engineering Internship

Engineering Internship

Données Générales			
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**		Responsable(s) Module DAVAL Gauthier
Type de module : Unité d'Enseignement	**Engineering Internship** (LIIEEng10UEngInternship)		
Crédits (ECTS)	30		
Effectif maximum	250		
Durée totale : 0h00	Periode Semester 10	Langue d'enseignement :	

- ECAM LaSalle Mechanical and Electrical Engineering Programme
- EENG - Year 5
- Semester 10
- Engineering Internship
- Engineering Internship S10

Engineering Internship S10

Données Générales				
Programme Académique	**ECAM LaSalle Mechanical and Electrical Engineering Programme**			Responsable(s) Module : BELLOC Cédric
Type d'EC : Cours	**Engineering Internship S10** (LIIEEng10EEngInt)			
	Statut	Periode Semester 10	Langue d'enseignement :	