

Sustainable Products & Supply Chains (ME-203)

All About the Course

Amin Kaboli, Martyn Wakeman

Week 1 – Session 1 – Feb 20th, 2025

SP&SC Team

Coaches



Michelle



Ivan



Thibault



Joan



Seung



Davide



Amelia



Daniele



Mizuki



Arthur



Benoit



Leo



Gaiane

Instructors

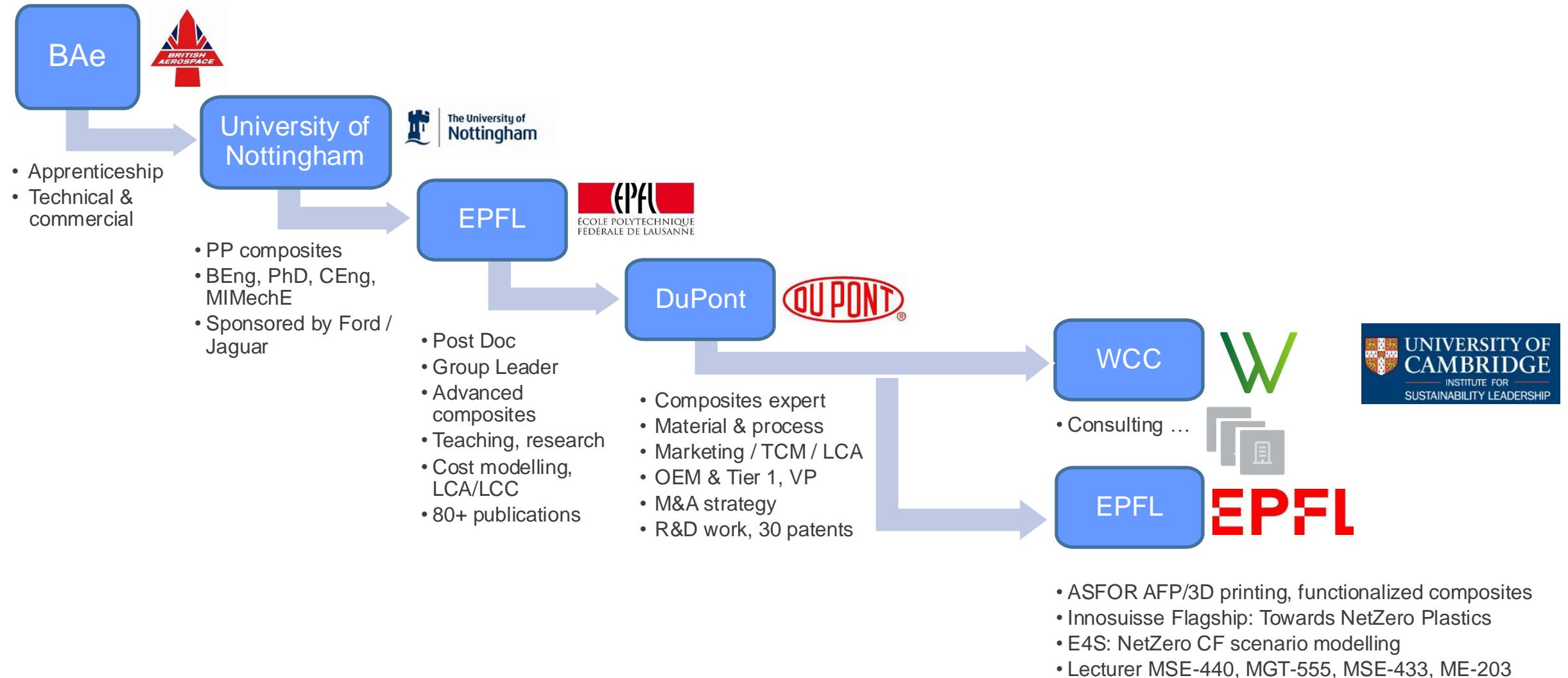


Martyn



Amin

Martyn Wakeman – Introduction





Amin Kaboli – Introduction

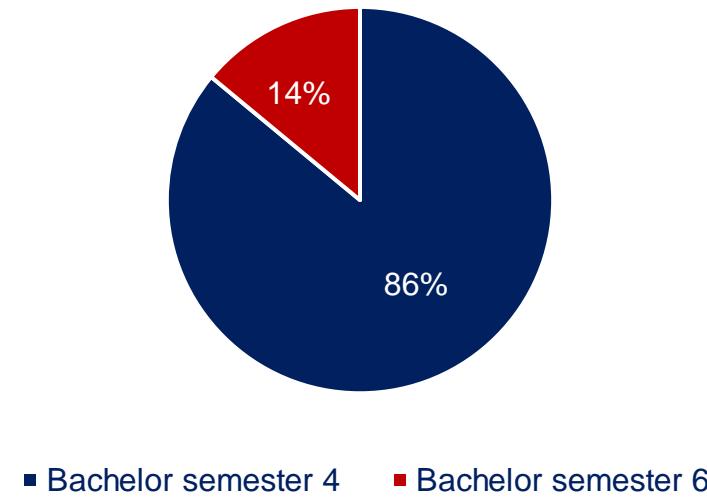
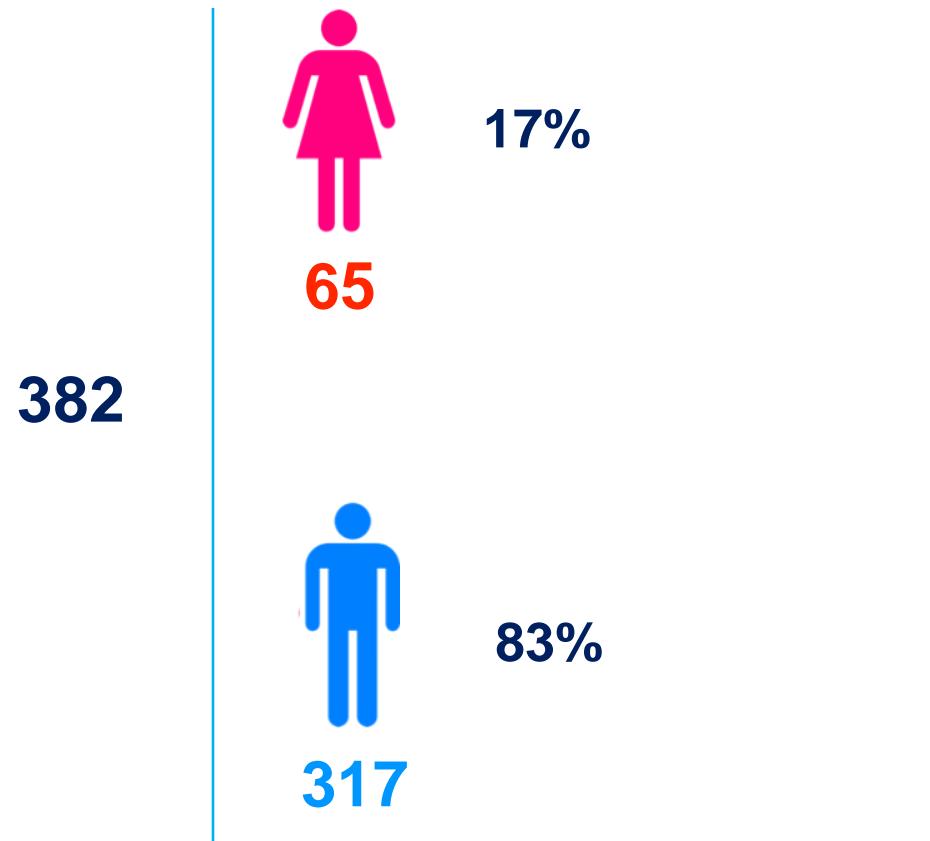
- **Academic & Teaching Role:** Lecturer and co-director of the AI Product Management executive program at EPFL, specializing in AI, supply chain management, and operational excellence.
- **Industry & Advisory Experience:** Advises corporates and startups on AI-driven transformations, with expertise benefiting companies like Rolex, Patek Philippe, Panerai, Philip Morris, Haleon, Sika, and Sauber Motorsport - Alfa Romeo F1 Team.
- **Background & Education:** Joined EPFL in 2018 after an industry tenure, including as a supply chain executive at Philip Morris. Holds a PhD in Manufacturing Systems & Robotics from EPFL and advanced leadership diplomas from IMD Business School.

Lecturer at Swiss Federal Institute of Technology, Lausanne (EPFL)

Education:

- IMD - Advanced Leadership diplomas
- EPFL - PhD in Manufacturing Systems & Robotics

SP&SC – Statistics



About You?



1



Meet your classmates

2



Introduce yourself

Your name

Why do you study Mechanical Engineering?

What is special about you?

3



Listen and connect

Agreement #1 – Cultivate (Personal) Growth Mindset



We are here to learn, embrace setbacks and mistakes

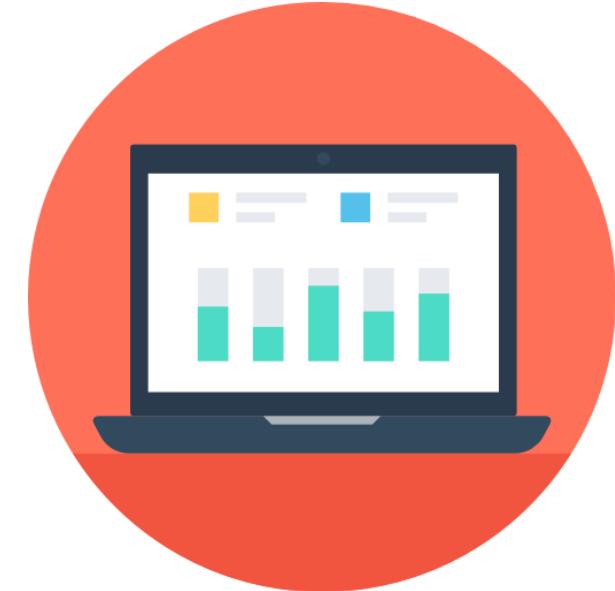
Agreement #2 – Disconnect to connect



Turn off or silence your phone



Handwritten note is highly recommended



Laptop is allowed during lab sessions

Agreement #3 – Connect and Bond with Class



Listen twice
and speak once



Effective Communication
4-sentence rule

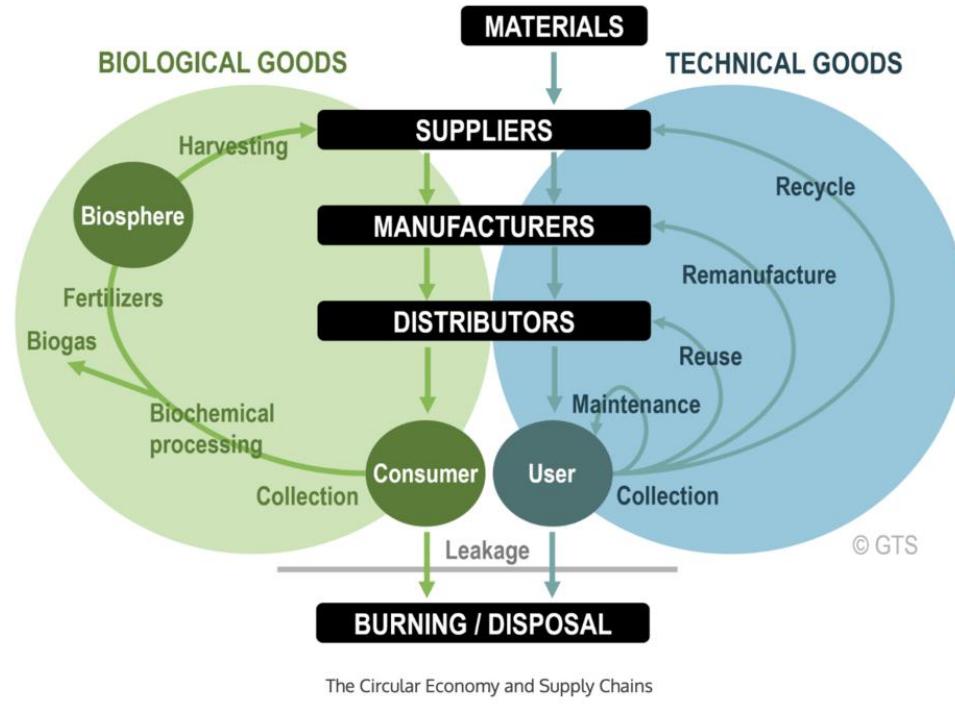


Question?
Raise your hand

Agenda

- **13:15 – 14:00** Introduction to Sustainable Products & Supply Chains (ME-203)
 - The course objectives, framework, structure, assessments, ...
 - Assessment methods and success factors
 - Your needs and expectations
 - Summary of seven agreements

The Course Objectives



The course is designed to provide a **foundational understanding of sustainability principles** and equip students with practical skills and tools to **develop** sustainable products and optimize supply chains.

The Learning Outcomes

By the end of the course, the student must be able to:



Understand and describe **key concepts in sustainability**



Analyze the **impacts** of products and supply chains

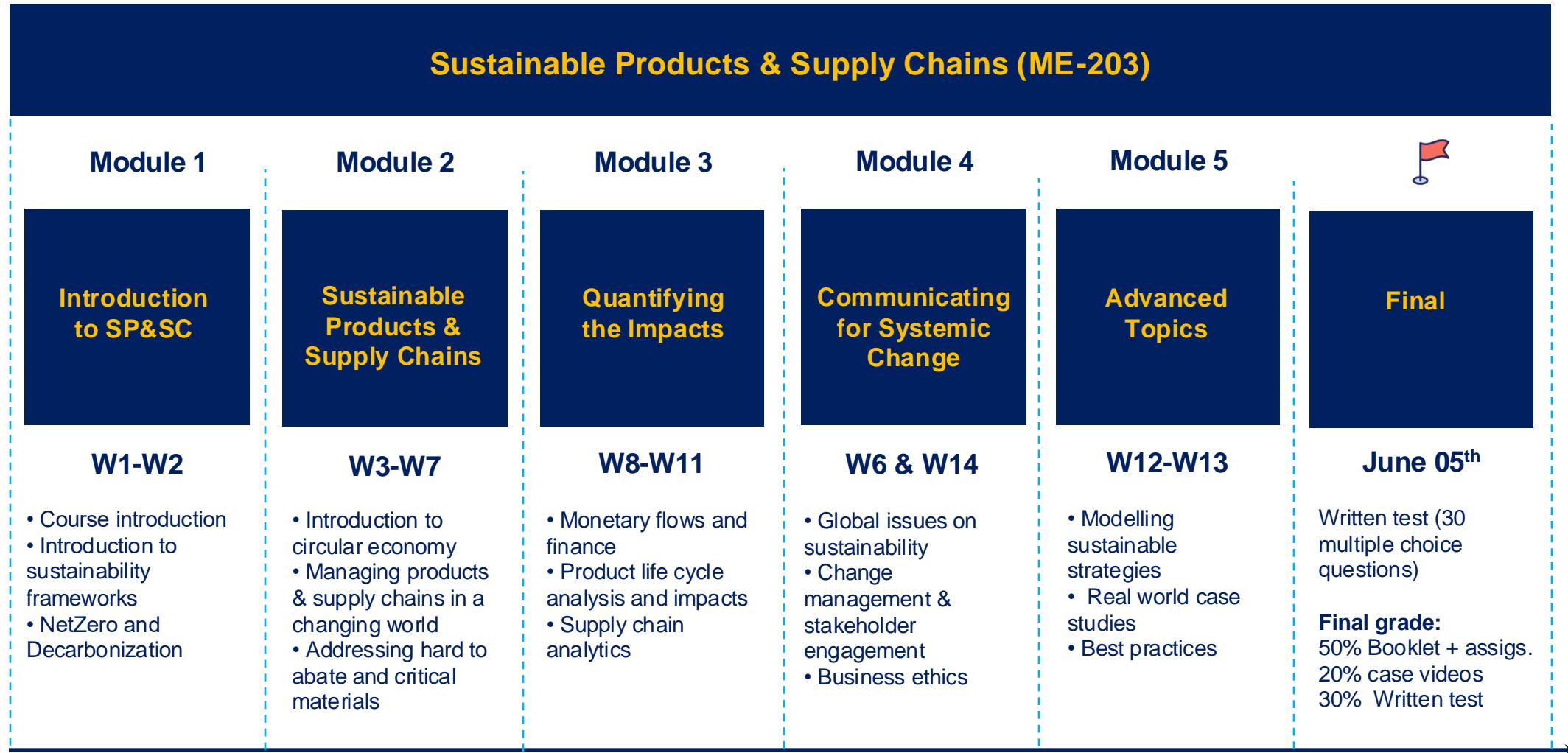


Propose strategies to **decarbonize** products & supply chains



Construct **sustainable** products & supply chains initiatives

Course Framework



Course Weekly Plan



Weekly Announcement
on Moodle

Block Schedule
(Subject to change)

Student Journey	Date	Student Activity	Week	Sustainable Products & Supply Chains (ME-203)		
				Learning objectives	Session 1: 10:15-11:00	Session 2: 11:15-12:00
The first 2 weeks of semester	20/2/2025		1	Course introduction, Framework, Sustainability 1. Course introduction and learning objectives. 2. Identify core pillars/framework of the course. 3. Recognize global trends and drivers in sustainability.	All about SPASC (Intro, Class stat, Course structure, Class policies, ...); grading	Sustainability through an engineering lens
Launch booklets and case studies	27/2/2025		2	Introduction to sustainable products 1. Understanding the concept of the circular economy 2. Understand the concept of the circular economy 3. Understanding your course group project and getting to know your group members.	Sustainability strategies and initiatives	Launch booklet case studies
	6/3/2025	Submission of Assignment 1 (Booklet)	3	Managing products and supply chains in a changing world 1. Understand the concept of supply chain management. 2. Explore the benefits of closed-loop supply chains. 3. Analyse case studies of circular supply chain implementations.	Products / Supply Chain Management (BOM)	Circular supply chains - case studies, best practices, and challenges
	13/3/2025	Submission of Assignment 2 (Booklet)	4	Addressing hard to abate and critical materials 1. Redesigning the product to reduce the hard to abate and critical materials 2. Explore strategies for reducing carbon footprints. 3. Discuss case study on EVs	AK Industrial decarbonization Hard to Abate and Critical Materials Towards sustainable materials & product design	Case study of Tesla (idea vs. Revamp/?) Group work
Student feedback	20/3/2025	Submission of Assignment 3 (Booklet)	5	Global issues 1. NetZero transition of global north (EU models) 2. Highlight global inequality and SDGs (Global south) 3. Perspective taking and respectful debate	MDW Guest speaker 1 Global North decarbonization lecture (e.g. eduardo.chiarolli@epfl.ch)	EV case study debrief
Intro to Video 1	27/3/2025	Submission of Assignment 4 (Booklet)	6	Communicating sustainability: human factor 1. Introduce change management process 2. Stakeholder engagement 3. Business ethics	MDW/WAK Guest speaker 2 Global South lecture, MedAir Human and societal impacts of climate change	AK MDW Guest speaker (Guido Palazzo) business ethics
Project interim feedback	3/4/2025	Submission of Assignment 5 (Booklet)	7	Monetary flows and finance Circular design exercises Interim feedback - videos / booklet	MDW/WAK Circular design - Cost modelling & finance - Cost of carbon - Green value creation	AK Circular design (Ellen Macarthur exercise in groups) 1) Review student interim feedback / communication (10 mins) 2) Video presentation (top-3 early submissions) (5 mins)
Video 1 due	10/4/2025	Submission of Case Video 1	8	Quantification of impacts 1. Introduce LCA, LCC, MFA 2. Give overview of LCA method 3. Simple LCA demonstration / try out	MDW Introduction to LCA, LCC, MFA	MDW LCA method Together
	17/04/2025	Submission of Assignment 6 (Booklet)	9	Supply Chain Analytics part 1 1. Understand and analyse Supply Chain Metrics 2. Map Supply Chain Networks	Supply chain analytics 1 Supply chain KPIs/Metrics	Supply chain analytics 2 Mapping supply chain networks

Class Structure (Max 6h/week required)



Assessments Methods – Continuous Evaluation



50%

Case booklet (teamwork)
Class assignments

20%

Video presentation of your case
(Video 1 & Video 2)

30%

Final written test
30 multiple choice questions
100%

Diverse Learning Needs – Inform Teaching Team Until Week 2



Dyslexia

Affects reading and related language-based processing skills



Dyscalculia

Affects a person's ability to understand numbers and learn math facts



Other

Dysgraphia, Non-verbal learning disabilities, Oral/written language disorder, ADHD, ...

Your Needs & Expectation(s)



Question 1:

What is your motivation for taking this course?



Question 2:

What do you expect to learn?



Question 3:

What would be an ideal outcome/take away for you?

What Do We Expect From You?



Individual

Respect

Presence

Involvement



Team

Respect

Teamwork

Openness to learn

Key Success Factor – Attention



Self-learning

Reading slides
Booklet



Class learning

Play & Practice
Guest speakers



Group learning

Team work
Creating study groups

Resources



Slides



Booklet



Case Studies

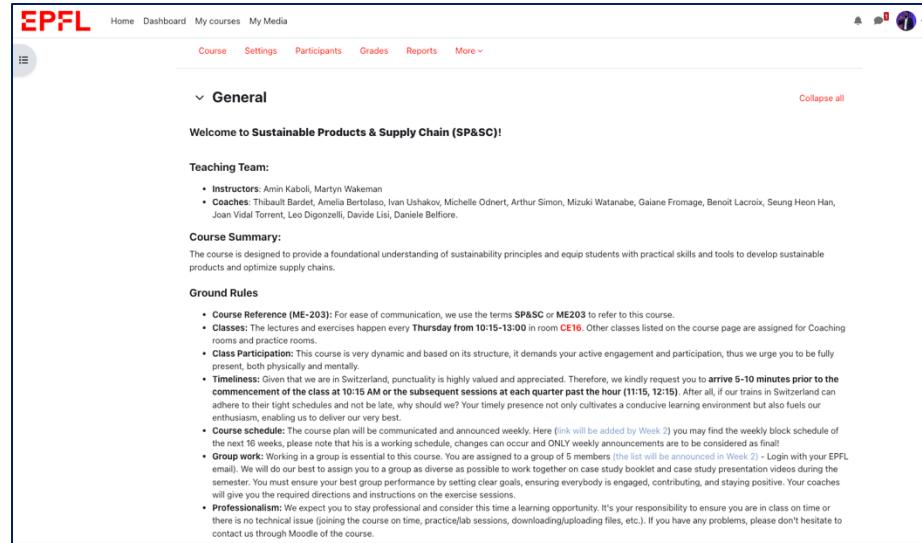


Videos



Book Chapters

Agreement #4 – Stay Connected/Communicate via Moodle



Welcome to Sustainable Products & Supply Chain (SP&SC)!

Teaching Team:

- Instructors: Amin Kaboli, Martyn Wakeman
- Coaches: Thibault Barde, Amelia Bertolaso, Ivan Ushakov, Michelle Odhert, Arthur Simon, Mizuki Watanabe, Gaiane Fromage, Benoit Lacroix, Seung Heon Han, Joan Vidal Torrent, Leo Dignozzi, Davide Lisi, Daniele Belfiore.

Course Summary:

The course is designed to provide a foundational understanding of sustainability principles and equip students with practical skills and tools to develop sustainable products and optimize supply chains.

Ground Rules

- Course Reference (ME-203):** For ease of communication, we use the terms **SP&SC** or **ME203** to refer to this course.
- Classes:** The lectures and exercises happen every **Thursday** from **10:15-13:00** in room **CE16**. Other classes listed on the course page are assigned for Coaching rounds.
- Class Participation:** This course is very dynamic and based on its structure, it demands your active engagement and participation, thus we urge you to be fully present, both physically and mentally.
- Timeliness:** Given that we are in Switzerland, punctuality is highly valued and appreciated. Therefore, we kindly request you to **arrive 5-10 minutes prior to the commencement of the class at 10:15 AM or the subsequent sessions at each quarter past the hour (11:15, 12:15)**. After all, if our trains in Switzerland can adhere to their tight schedules and not be late, why should we? Your timely presence not only cultivates a conducive learning environment but also fuels our enthusiasm, enabling us to deliver our very best.
- Course schedule:** The course plan will be communicated and announced weekly. Here [link will be added by Week 2](#) you may find the weekly block schedule of the next 16 weeks, please note that this is a working schedule, changes can occur and ONLY weekly announcements are to be considered as final!
- Group work:** Working in a group is essential to this course. You are assigned to a group of 5 members ([the list will be announced in Week 2](#)) - Login with your EPFL email. We will do our best to assign you to a group as diverse as possible to work together on case study booklet and case study presentation videos during the semester. Group work will be evaluated by setting clear goals, ensuring everybody is engaged, contributing, and staying positive. Your coaches will give you the required directions and instructions on the exercise sessions.
- Professionalism:** We expect you to stay professional and consider this time a learning opportunity. It's your responsibility to ensure you are in class on time or there is no technical issue (joining the course on time, practice/lab sessions, downloading/uploading files, etc.). If you have any problems, please don't hesitate to contact us through Moodle of the course.



Hand-outs



Plans



Docs



Slides



Videos, ...

Agreement #5 – Report Professionally



Executive summary/abstract
Conclusion



Problem/Analysis/Outcome



Citation and referencing

Agreement #6 – Present Professionally



Structured, short,
concise, to the point



Visualize
Problem/Solution/Outcome

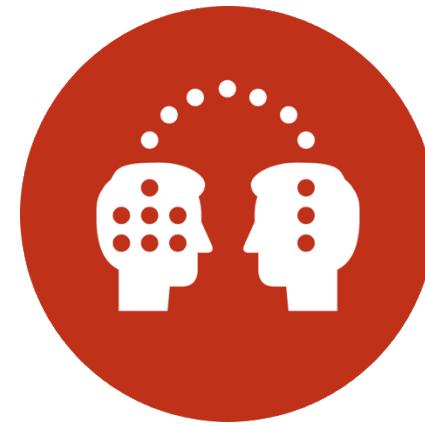


Respect 5 min
allocated time

Agreement #7 – Giving and Receive Effective Feedback



Feedback is a gift



Feedback/comments are
always welcome

Seven Agreements – Summary



Cultivate Growth mindset



Stay connected off-class (Moodle)



Disconnect to connect



Report Professionally



Connect and bond with your team, coaches, class



Present Professionally



Give and receive effective feedback