

## **BIP planning: Tackling the water hyacinth 2**

### **Phase 1: Students prepare**

Within EM on TM, the students within the Mechatronics project work for a whole semester on the development of 2 topics within the Water Hyacinth case. In the further course of the 2nd semester, they will continue to work on the practical realization of a prototype.

Within Agro- and Bio op TM, we will delve into the ecology of invasive species during the 2nd semester

### **Phase 2: Online pre-phase (2-3 weeks before physical/virtual meeting)**

Goals: Introduction, team formation, problem exploration

Activities:

-Week 1:

Students receive the trigger and background information: Erwin and Jan Ove

Virtual introduction via videoconferencing (taking into account time zones)

Online platform: Teams

- Week 2-3-4:

Seminars by specialists on topics related to the water hyacinth case:

Ethiopia partner: Case at one of the lakes

Silvia: Activated charcoal

Michael Rowe: PBL

Kumar: Malaysian partners

Online platform: Teams

Note: International Days Sessions (maybe streaming)

- Sofie: Invasive species
- Erwin: PBL
- Ion & Joao : Engineering Nature's Defenders

### **Phase 3: Intensive phase (1 week physical): March 2026**

Goal: In-depth analysis, developing solutions, intensive collaboration

Introductory question: when will the students arrive?

To Do: Sleeping accommodation

#### **Day 1: Monday 23/3 – Campus Geel:**

**10:15 – 11:45: Mechatronics session:** PBL in progress: international students are divided among the existing projects (advantage of our students: international component)

**11:45 am – 12:30 pm:** Lunch on campus (Erwin requests receipts)

**12:30 – 14:00: Session:** international communication (Lena Dilien)

**2:15 pm – 4 pm: Session:** Problem deepening: Teams present themselves and their pre-phase findings

**6 pm:** Dinner in Antwerp

**8 pm:** Free time or city walk in Antwerp

#### **Day 2 : Tuesday 24/3: Campus National or Campus Lier**

##### **9 am – 10 am: SDGs session**

Based on new insights, teams reformulate their problem definition and new teams are formed and a new group assignment (SDG-related): Team division (4-6 students per team, mixed nationality and discipline) with the team names invasive species in the Kempen (Asian hornet, bullfrog, wool crab, sunfish, raccoon, Egyptian goose, ring-necked parakeet, ...)

**10 a.m. – 12 p.m.:** Working time in the new groups

**12 p.m. – 1 p.m.:** Lunch on campus

**1 pm – 4 pm: Session:** Technical deepening: Offering topics on water hyacinth (activated carbon, fibres for building materials, animal feed, use of compost, ...). Workshops per discipline (mechanical systems, ecological monitoring, community engagement) followed by cross-pollination in which teams integrate technical, ecological and social aspects. guest lectures by stakeholders such as ecologists, community organizers and engineers. 1st DELIVERABLE (ppt)

**Note:** Kumar and Silvia call in

**4 pm – 6 pm:** Free time or city walk Antwerp

**Day 3 : Wednesday 25/3 : visit of Bruges (Sister of Feline)**

**Day 4 : Thursday 26/3:**

Developing solutions: Teams work on concrete proposals with prototyping where possible (sketches, business models, monitoring protocols), followed by interim peer-review and iteration. 2<sup>Th</sup>e deliverable

**Day 5 : Friday 27/3:** Campus Geel

Presentation and evaluation: Final presentations for panel of evaluators, peer assessment, and reflection session on learning and collaboration (deliverables).

Company visit Nike / animal feed company

**Closing in Antwerp**

**Phase 4: Online post-phase (2-3 weeks after intensive phase)**

Objectives: Elaboration, reporting, reflection

Activities:

- Teams develop their proposals into a full report
- Processing feedback from intensive phase (deliverables)
- Individual reflection on learning process and competence development
- Peer-review of each other reports (between teams)
- Final submission of group report and individual reflection

Deliverables:

- Group report (15-20 pages) with problem analysis, stakeholder analysis, intervention proposal, implementation plan
- Individual reflection (1-3 pages) on own learning process and competence development
- Optional: Visual output such as poster (academic), infographic (academic), video for non-academic audiences