



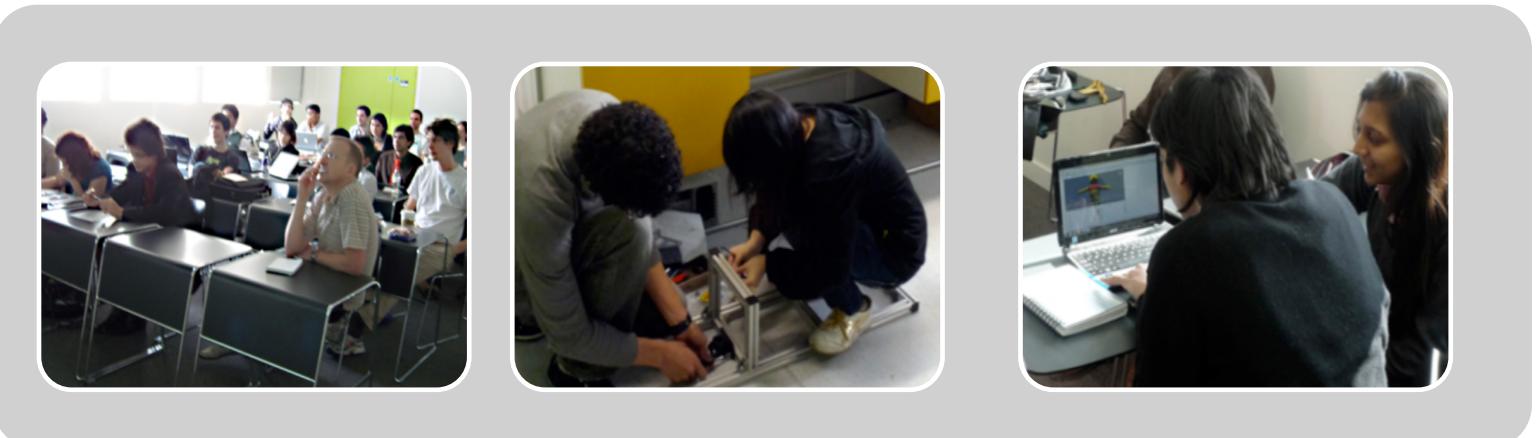
H-CARD GROUP FORMATION:

HUMAN-CENTRED DESIGN OF ASSISTIVE AND REHABILITATION DEVICES

Imperial College London –
Department of Bioengineering
Spring Term 2021

INTRODUCTION TO H-CARD

GOAL : To learn
rehabilitation and
assistive technology
through



The collage consists of three photographs arranged horizontally. The first photo shows a classroom with several students seated at desks, looking towards the front. The second photo shows two students from behind, focused on a physical object they are assembling or examining on a workbench. The third photo shows a group of students gathered around a laptop, looking at a 3D rendering of a bird on the screen.

Lectures
by clinical
collaborators
and
technologists

Hands-on
development of
**your own
ideas**

Collaboration
with students from
different
backgrounds

TEACHING AND SUPPORT TEAM

Project Conceptualization & Development



Dr Aaron Yurkewich
Postdoctoral GTA

Robotics, Mechatronics,
Clinical Trials



Lucille Cazenave
GTA

Bioengineering &
Sensorimotor
Assessment



Pilar Zhang Qiu
GTA

Design Engineering
& Wearable Systems

Electronics Support



Paschal Egan
Electronics
Laboratories
Electronics
Engineering

Course Lead



Prof Etienne
Burdet
Course Leader
Human Motor Control
& Human-Machine
Interaction

H-CARD TIMELINE

Task Name	January 2021		February 2021			March 2021			April 2021		Summer Term
	W01 (18-24th)	W02 (25-31st)	W03 (1-7th)	W04 (8-14th)	W05 (15-21st)	W06 (22-28th)	W07 (1-7th)	W08 (8-14th)	W09 (15-21st)	W10 (22-28th)	
▲ Lectures			●								
W1 - Lectures		Lectures 1-2									
W2 - Lectures			Lectures 3-4								
W3 - Lectures				Lectures 5-6 & First Group Meeting							
▲ Project Timeline											
01 - Group Formation				●	Group Formation						
02 - Brainstorming of 3 concepts				●	Brainstorming						
03 - Components Ordering						●	Components Ordering				
04 - Project Development							●	Development			
▲ Assignment Deadlines											
0% - Group Formation				Wednesday, 3 Feb - Group Formation Submission							
20% - Individual Report				Thursday, 4 Feb - Individual Report							
0% - Presentation of 3 concepts				Friday, 12 Feb - Presentation of 3 concepts			Friday, 19 March - Competition				
40% - Group Project - Competition									Friday, 2 April - Group Report		
10% - Group Project - Report											
30% - Individual Oral Exam										TO BE DETERMINED	Individual Oral Exam

GROUPS

6
Groups

5
Students per group
(maximum)

You are free to select your group, but to increase diversity and learn collaborating with colleagues from different background, each group must be formed of:

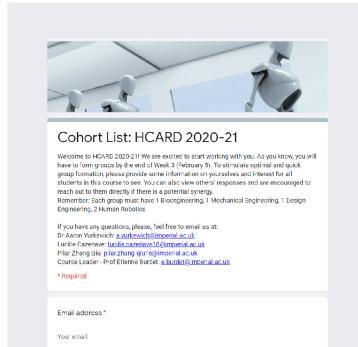
- 1** MEng Bioengineering
- 2** MEng Mechanical Engineering / Design Engineering (incl. at least 1 MechEng)
- 2** MSc Human Robotics

The groups selection will be online, as the whole class will meet virtually in order to avoid spreading the covid virus.

You can meet your groupmates in person as soon as your group is formed!

ONLINE GROUP FORMATION OVERVIEW

1



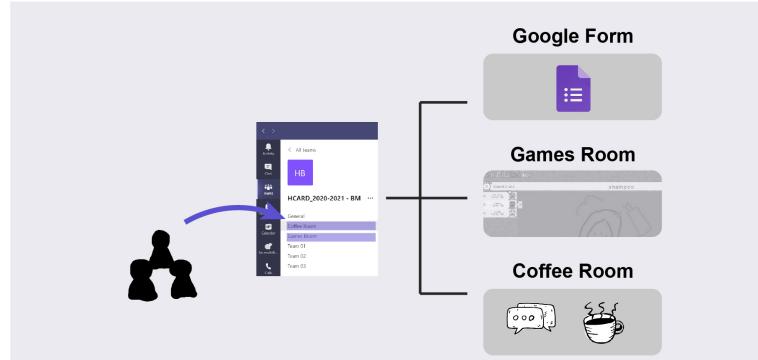
During Winter Break (Deadline January, 4)

Fill in the Google Form

We have created a google form to help you form your groups.

In the form, you can indicate your skills and your interests as well as which course you are from. Your interests in rehabilitation and specific pathologies will evolve during the course so you'll be able to update your details anytime until the group formation deadline.

2



Get To Know Your Classmates (W1 & W2 - Fri, 22-29 January - Between Lectures: 10-11AM)

How can I get to know my classmates?

You will have access to the google forms from everyone in the course and you can start contacting anyone you think might be a good fit for your group. We encourage you to start reaching out to your classmates early since you will be able to meet with your group in person as soon as you have formed it. Keep in mind that you need to have a diverse group i.e. students coming from all departments.

Rooms to promote socialising

You will also have access to break-out rooms with games or discussion between the two lecture sessions (10-11AM). Please use this time to get to know your coursemates and discuss your ideas and interests for the project.

Note that the lectures are compulsory and you should watch them live. Attendance will be taken.

3



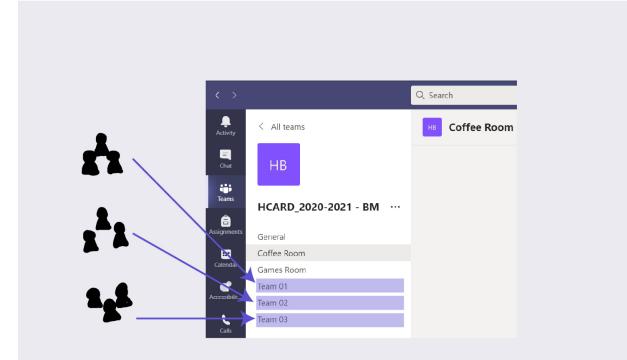
Team Formation Deadline (W3 - Wed, 3 February)

Submit your team details

One person in the team will have to submit the list of members. The teams should consist of 5 members, with a maximum of 2 students from the same course. We recommend: 1 Bioengineering, 1 Mechanical Engineering, 1 Design Engineering and 2 MSc Robotics students.

If you haven't found a group by then, you will be assigned to any incomplete groups.

4



First Team Meeting (W3 - Fri, 5 February - After Lectures: 11AM)

Face-to-Face Meetings

From Friday 5th February, you must attend classes in person. You will watch the last online lecture (Fri, 5 February) with your project group in a dedicated room in South Kensington.

This room will be booked for your group every Friday from 9.00-12.00. You can meet in person during this slot while ensuring social-distancing.

FILL THE INDIVIDUAL FORM ONLINE BEFORE 4/1/2021

1

Task Name	January 2021		February 2021				March		
	W01 (18-24th)	W02 (25-31st)	W03 (1-7th)	W04 (8-14th)	W05 (15-21st)	W06 (22-28th)	W07 (1-7th)	W08 (8-14th)	
▲ Lectures									
W1 - Lectures	<input checked="" type="checkbox"/>			Lectures 1-2					
W2 - Lectures		<input checked="" type="checkbox"/>		Lectures 3-4					
W3 - Lectures			<input checked="" type="checkbox"/>	Lectures 5-6 & First Group Meeting					
▲ Project Timeline									
01 - Group Formation			<input checked="" type="checkbox"/>	Group Formation					
02 - Brainstorming of 3 concepts				<input checked="" type="checkbox"/>	Brainstorming				
03 - Components Ordering					<input checked="" type="checkbox"/>	Components Ordering			
04 - Project Development					<input checked="" type="checkbox"/>	Project Development			
▲ Assignment Deadlines									
0% - Group Formation			<input checked="" type="checkbox"/>	Wednesday, 3 Feb - Group Formation Submission					
20% - Individual Report			<input checked="" type="checkbox"/>	Thursday, 4 Feb - Individual Report					
0% - Presentation of 3 concepts				<input checked="" type="checkbox"/>	Friday, 12 Feb - Presentation of 3 concepts				
40% - Group Project - Competition									
10% - Group Project - Report									
30% - Individual Oral Exam									



Cohort List: HCARD 2020-21

Welcome to HCARD 2020-21! We are excited to start working with you. As you know, you will have to form groups by the end of Week 3 (February 5). To stimulate optimal and quick group formation, please provide some information on yourselves and interest for all students in this course to see. You can also view others' responses and are encouraged to reach out to them directly if there is a potential synergy.

Remember: Each group must have 1 Biomechanics, 1 Mechanical Engineering, 1 Design Engineering, 2 Human Robotics

If you have any questions, please, feel free to email us at:
 Dr Aaron Yurkovich: a.yurkovich@imperial.ac.uk
 Lucille Cavenagh: lucille.cavenagh16@imperial.ac.uk
 Mu Zhang Liu: polarzhang.liu03@imperial.ac.uk
 Course Leader - Prof Etienne Burdet: e.burdet@imperial.ac.uk

* Required

Email address *

Your email

**During Winter Break
(Deadline January, 4)**

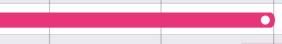
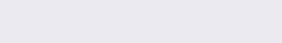
Fill in the Google Form

We have created a google form to help you form your groups.

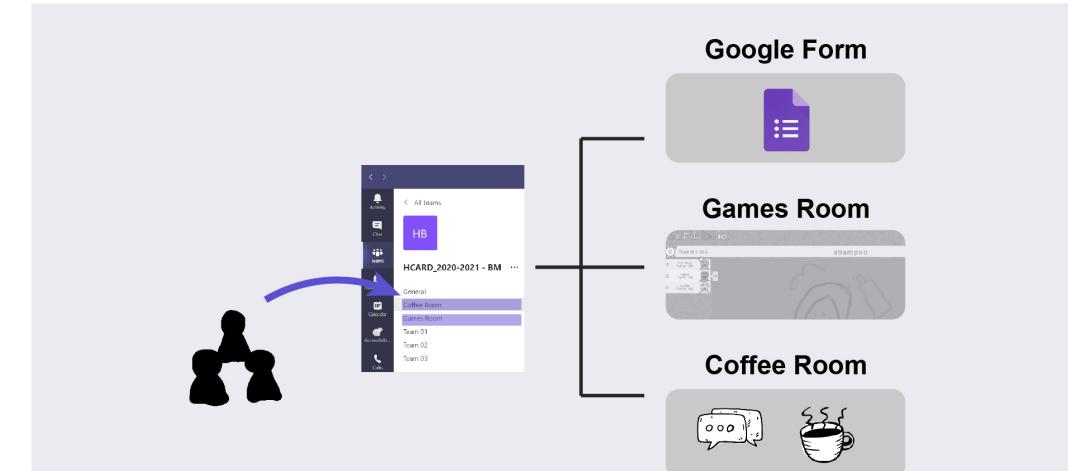
In the form, you can indicate your skills and your interests as well as which course you are from. Your interests in rehabilitation and specific pathologies will evolve during the course so you'll be able to update your details anytime until the group formation deadline.

GET TO KNOW YOUR CLASSMATES AFTER LECTURES:

4-29/1/2021

Task Name	January 2021		February 2021		March			
	W01 (18-24th)	W02 (25-31st)	W03 (1-7th)	W04 (8-14th)	W05 (15-21st)	W06 (22-28th)	W07 (1-7th)	W08 (8-14th)
Lectures								
W1 - Lectures								
W2 - Lectures								
W3 - Lectures								
Project Timeline								
01 - Group Formation								
02 - Brainstorming of 3 concepts								
03 - Components Ordering								
04 - Project Development								
Assignment Deadlines								
0% - Group Formation								
20% - Individual Report								
0% - Presentation of 3 concepts								
40% - Group Project - Competition								
10% - Group Project - Report								
30% - Individual Oral Exam								

2



Get To Know Your Classmates
(W1 & W2 - Fri, 22-29 January - Between Lectures: 10-11AM)

How can I get to know my classmates?

You will have access to the google forms from everyone in the course and you can start contacting anyone you think might be a good fit for your group. We encourage you to start reaching out to your classmates early since you will be able to meet with your group in person as soon as you have formed it. Keep in mind that you need to have a diverse group i.e. students coming from all departments.

Rooms to promote socialising

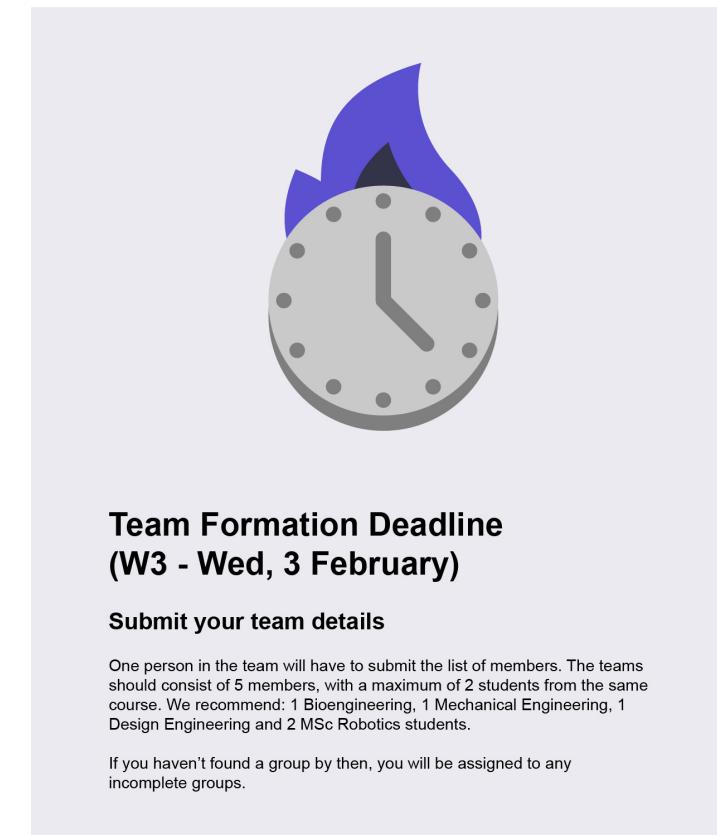
You will also have access to break-out rooms with games or for discussion between the two lecture sessions (10-11AM). Please use this time to get to know your coursemates and discuss your ideas and interests for the project.

Note that the lectures are compulsory and you should watch them live. Attendance will be taken.

ONLINE GROUP FORMATION : UNTIL 3/2/2021

Task Name	January 2021		February 2021				March			
	W01 (18-24th)	W02 (25-31st)	W03 (1-7th)	W04 (8-14th)	W05 (15-21st)	W06 (22-28th)	W07 (1-7th)	W08 (8-14th)		
▲ Lectures										
W1 - Lectures	<input checked="" type="checkbox"/>			Lectures 1-2						
W2 - Lectures		<input checked="" type="checkbox"/>		Lectures 3-4						
W3 - Lectures			<input checked="" type="checkbox"/>	Lectures 5-6 & First Group Meeting						
▲ Project Timeline										
01 - Group Formation	<input checked="" type="checkbox"/>		Group Formation							
02 - Brainstorming of 3 concepts			<input checked="" type="checkbox"/>		Brainstorming					
03 - Components Ordering			<input checked="" type="checkbox"/>		Components Ordering					
04 - Project Development			<input checked="" type="checkbox"/>							
▲ Assignment Deadlines										
0% - Group Formation			<input checked="" type="checkbox"/>	Wednesday, 3 Feb - Group Formation Submission						
20% - Individual Report			<input checked="" type="checkbox"/>	Thursday, 4 Feb - Individual Report						
0% - Presentation of 3 concepts			<input checked="" type="checkbox"/>	Friday, 12 Feb - Presentation of 3 concepts						
40% - Group Project - Competition										
10% - Group Project - Report										
30% - Individual Oral Exam										

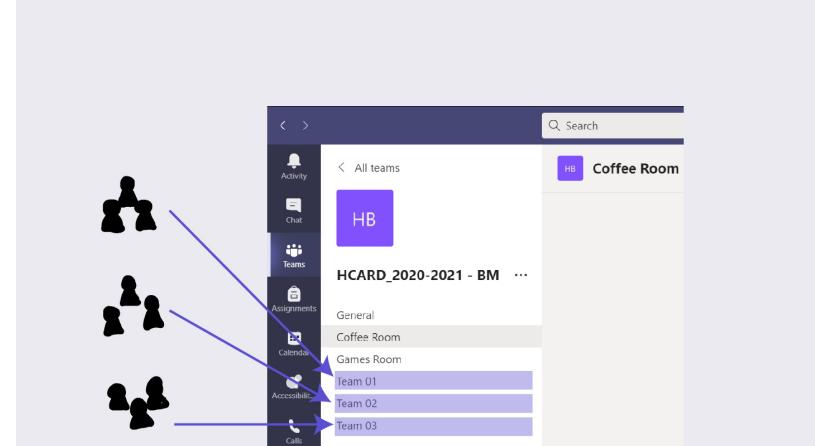
3



GROUP FACE TO FACE MEETING ON 5/2/2021

4

Task Name	January 2021		February 2021				March	
	W01 (18-24th)	W02 (25-31st)	W03 (1-7th)	W04 (8-14th)	W05 (15-21st)	W06 (22-28th)		
Lectures								
W1 - Lectures				Lectures 1-2				
W2 - Lectures			Lectures 3-4					
W3 - Lectures				W3 - Lectures	Lectures 5-6 & First Group Meeting			
Project Timeline								
01 - Group Formation	Group Formation							
02 - Brainstorming of 3 concepts				Brainstorming				
03 - Components Ordering					Components Ordering			
04 - Project Development						Project Development		
Assignment Deadlines								
0% - Group Formation					Wednesday, 3 Feb - Group Formation Submission			
20% - Individual Report					Thursday, 4 Feb - Individual Report			
0% - Presentation of 3 concepts						Friday, 12 Feb - Presentation of 3 concepts		
40% - Group Project - Competition								
10% - Group Project - Report								
30% - Individual Oral Exam								



The screenshot shows the Microsoft Teams application interface. On the left, there is a navigation bar with icons for Activity, Chat, Teams, Assignments, Calendar, and Calls. Below the navigation bar, there is a search bar and a 'HB Coffee Room' button. The main area displays a list of teams: 'All teams' (HB), 'HCARD_2020-2021 - BM ...', 'General', 'Coffee Room', 'Games Room', 'Team 01' (highlighted in purple), 'Team 02', and 'Team 03'. Three blue arrows point from the text 'First Team Meeting' to the 'Team 01' entry in the list.

First Team Meeting
(W3 - Fri, 5 February - After Lectures: 11AM)

Face-to-Face Meetings

From Friday 5th February, you must attend classes in person. You will watch the last online lecture (Fri, 5 February) with your project group in a dedicated room in South Kensington.

This room will be booked for your group every Friday from 9.00-12.00. You can meet in person during this slot while ensuring social-distancing.