**TASK 02**

THREE PRELIMINARIES CONCEPTS (preliminary proposals)

What is a concept?

*A concept is the main idea behind the piece, is the motor or the main guide that will generate the object. This concept can be generated from an abstract idea, metaphors, geometrical shape by itself, a statement... these ideas will lead in the production of an art piece.*

Each team will have to produce three different concepts for your Transition (ideas), each concept will be including the following:

1. Statement (mathematical, structural, aesthetic, (how you approach your idea?), Why? (explanation).
2. Implementation > how is it translated into something tangible? > diagrams, sketches, drawings, models?, pictures etc.)
3. Possible materiality, samples of materials?

Good luck.

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Crystal Flowers in Halls of Mirrors: Mathematics meets Art and Architecture

Student artworks of a transdisciplinary course Crystal Flowers in Halls of Mirrors: Mathematics meets Art and Architecture at Aalto University are curated to a solid exhibition at Heureka Science Centre. This event is a concrete opening to enhance interaction between science and art. It aims to break standard clichés related to mathematics by bringing deep phenomena to the level of human interaction. Open-minded collaboration across the conventional barriers between disciplines brings more space for common goals in human understanding. Through this exhibition random visitors and educators from early childhood to research level find an inspiring example and ideas to new directions.

Students of the course come from different Schools of Aalto from freshmen to PhD students. Diverse groups have designed and implemented their own interpretations of mathematical, geometry/transformations in low-dimensional geometry and topology.

“Celestial Bodies”

Exhibition at Heureka

“Celestial Bodies” is the title of your exhibition, which be hold at the Science Center Heureka from June to August 2023. The exhibition aims to find multiple relations between art and mathematics. In Mathematics, like in art there is a big space for interpretations and perspectives; these perspectives try for example to find different proofs and approaches. One of them is to increase understanding of this science. This statement is one of the main purposes of this exhibition: “to make science approachable through art”; to share the human understanding of mathematics to all levels; from a kid to a senior. This exhibition will try to reach all kind of audiences (from mathematics, arts and any kind of audience) and aims that the people see mathematics as a source of inspiration from visual practices.

The exhibition content will be created by groups teams; these will be formed by multidisciplinary student teams; each group will make interpretations in mathematical, geometry/transformations in low-dimensional geometry and topology by designing a sculpture for the exhibition. Due to the different academic backgrounds of the students, each student can approach the task from the rational through the sensitive, or vice versa; this option is a flexible way that will help to developed and produce outcomes with this dual relation.

The whole exhibition is pictured as a "sky" of "Celestial Bodies" or floating sculptures. The main idea is to generate a spatial experience for the visitor by visiting under the art pieces. Each team will design and produce one “Celestial Body” of 4,5 meters. Once all pieces are brought together, they will generate something "more" than the separate pieces on their own; generating a synergy when all the sculptures are together. The expression and result of each sculpture has to be unique and conceived considering the concepts, topics related to the course and the ideas created in each multidisciplinary group.

As teachers, we would like you to find new ways to express the topics of the course and your personal and group ideas. Use any media, materials (lightweight) and experiment with them. As in all exhibitions there are some Guidelines to follow (more details will be discussed in the tutoring per group as idea for each piece becomes clearer), but the following are the most important to be considered.

Guidelines:

* Each team will have a budget of 1000€ (max. amount, this includes the material for prototypes and models)
* The pieces have to be considered as lightweight Structures\* in case there are physical objects
* Each team will design; produce one “Celestial Body” that has to have as maximum 4,5 m lenght,
* Each team will do the setup of their own sculpture.
* Each team will help setting down the exhibition in August?.
* pieces are brought to Aalto after the Heureka exhibition (only if it is possible)

\*Lightweight structures, when we talk about it, does not mean that the appearance has to be lightweight in case you do not want it; in this guideline is because of technical and safety reasons. In case you want and opposite effect than lightweight; how can something with a heavy appearance actually have a light structure? There is the possibility to work ephemeral pieces. What if the piece is something immaterial? Something that relates more than the visual sense? Etc...

\*These guidelines are not limitations and do not mean that you lack options, on the contrary the guidelines and limitations will give you the opportunity to be more creative in a way of solving a problem. When there are limitations, we find better solutions to achieve something. (Those limitations will be discussed with each team during the process)

Teams

Please consider that during the whole project you will have to work in Teams, there are things that you will agree but as well, you will disagree in team working; the main idea of working in a multidisciplinary team (to create a unique synergy that is impossible to produce in-group of students of the same discipline). As well when you work as a group, you can cope with the workload and you will be capable to work with more people (in reality the vast majority of the time you have to work with someone else). You will have other perspectives that enrich the analysis of the problem, enhance the design or the proposal with different solutions, approaches and problems. Team working increases your capacity to stablish better relations and to get agreements with the people you are working with.

Responsibility areas needed on each team (can be shared, each member should have a role). The roles need to be agreed together inside each group.

* Project manager and communication manager
* Documentation manager
* Finance manager

The following suggestions will be mentioned because:

Several times the working culture among different cultures and disciplines can be interpreted as a way of not respecting or listening to others, but in reality, some people are following the way they have always worked. One example could be that in one country the working culture is often more individualistic that in other cultures. It is recommended that the students discuss about the way they will work in order to avoid misunderstandings and in case there are differences, think about a possible solution for it. *a good solution is that you create at the beginning of the course some “rules of engagement that you wirte down and everyone of the groups agrees on them; so when something is not clear or a situation it is not the ideal you can go through the rules any time.*

Teamwork challenges

* Different skills to work in teams
* Difference of commitment for the project
* always remember, “Everyone is entitled to think whatever they want but not everything that I think is the correct answer”
* Different abilities to build on similar and different ideas (listen others opinion, consider others opinion)
* Different skills to communicate and discuss about opportunities and challenges for the project (no to talk the things)

It is forbidden

* Not to agree on dates and meetings among the group
* Not to have a calendar for meetings
* Not to respect the others time
* Not to value the project
* not to talk the things
* not to enjoy the course
* and not to have fun!

The teams will be responsible of the following:

* to approach the study case with a professional and critic attitude to achieve a professional solution
* to design a feasible and realistic proposal inside the technic and budget limitations
* to search for techniques, detail or any answer that the design team needs
* To keep the professionalism and the sensibility with the project, teacher, team members and the course in general during the whole process.
* to keep interested always in the project
* good communication so that your project can progress through the course, even if there are other things requiring your time at some times
* Each team is responsible (with the help and support of the teachers) to search for all solutions, prices etc…
* The most important...To enjoy it and have fun!

Tips during process of design and exhibition

* Communication is the base for everything
* Changes will be made always, even in the last minute, so don’t get frustrated
* You have to deal with many project stakeholders (groupmates, teachers, technicians…)
* Be calm
* Be updated with the work your team is doing
* Be curious (search for things, solutions, techniques, information….)
* The work is not linear, do many things at the same time, but one specific thing at the time ;) , research, design, search for solutions, is not going from the point a, to b… is more a.. ab….abc….bcdf…
* Listen
* Ask
* Propose (don´t be shy)
* Propose
* Propose
* Prototype
* Prototype
* Prototype
* Fail
* Fail again
* So try again
* Fail better (Samuel Beckett)
* Learn from it ☺