

SUSTAINABILITY

IE University

Professor: **MANUEL QUIRÓS GALDÓN**

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Degree course: SECOND

Semester: 1^o

Category: COMPULSORY

Number of credits: 6.0

Language: English

PREREQUISITES

SUBJECT DESCRIPTION

Sustainability is imperative in any discipline, becoming day by day strategic, whatever the business sector. Nowadays, designers, a profession handling materials, energy, water, people, waste, etc., putting on the market products and services, must consider the repercussions of their design decisions. Sustainability is not always well understood from the perspective of the designer.

In this course, we will see the fundamental scientific principles that operate the functioning of the operating conditions of the Earth, where we live and compare them with the way humans do. We must understand and be aware that the current linear model of thinking and design must inexorably move to another circular, as dictated by nature, sustainable and regenerative by definition. Finally, the origin of COVID with biodiversity loss is well documented, so it is relevant to check what we can do for nature to ensure the human wellbeing.

We will analyze the state of the planet, its connection with the design, and value it to know to change our mindsets finally. This subject also seeks to reach a higher degree of consciousness to design doing good. Design not only has to be good but also do good. In the end, sustainability is also a design problem and decision making.

The subject also looks for an increase in awareness since the daily decisions as a citizen sometimes are not easy to split and handle. So, we will check the organic market and other eco-choices that could be better designed to enhance consumer decisions.

From 2020, IE University is taking the position as a sustainable institution. We will give some contribution for this new path.

OBJECTIVES AND SKILLS

Several primary objectives will be pursued during the program. As a future professional, the student must know the current situation of the planet and its connection with the discipline of Design with a holistic eye. Companies, brands, governments, and society evolve daily towards environmental and social responsibility in their decision making and policies. All this framework is being established, no doubt, thanks to the effort of the sustainable leadership of the European Union aligned with the Sustainable Development Goals by the United Nations. The actual COVID and all the consequences are also contributing somehow. Students will have a clear basic understanding of the negative impacts related with the field related to environment and social issues. At the same time we'll cover the opportunities to the new "green" global context.

We will cover the connections of the design field with the different footprints: hydric, carbon, ecological, biodiversity and social, together with the new emergent economies will be the basis of the matter. In the same way, we will analyse first-hand the organic market and its opportunities and the success and importance of sustainable certifications.

Finally, during the last period of the season, the student will apply part of their knowledge acquired in a final project. The project is still open to be defined. In previous years, students covered aspects of their university ecosystem, the IEU Segovia campus. The team works using research, analysis, critical thinking, systemic vision and connection with the design sector will allow a broader vision towards the commitment of awareness and ethics. Knowledge acquired during the previous/current year must be applied.

So, the student, through the program, will obtain a fundamental and robust understanding of sustainability and practical, easy research of the subject. Culture, consciousness, awareness, and personal emotions from weekly study and reading will also be significant achievements. Changing the personal attitude from different perspectives will also be encouraged to the students in order not only to be part of a global movement but also to make changes at the early stages in the design scope. Hopefully, some academic deliveries could be included in the student's portfolio.

The student will get several essential skills in the subject, such as working in groups, individual research abilities, synthetic design contents to share in class, critical thinking perspective/analysis, and linking sustainability with design... At the same time, through the program, students will get general skills: practical applicability to the sustainability fundamentals in the design sector, systemic thinking perspective/analysis, etc. Specifically, beyond these contents, one of the main objectives is to enhance responsible, meaning social & environmental concerns, professional behaviour at the early stages of the profession not wanting to be in the market.

METHODOLOGY

Active and truly participating classes where teacher and students together will co-create content through weekly basic research, applied studies and personal oral presentations (flipped class). With the assistance of essential readings, visualizing videos, daily news, local events, etc., we will create debates and change minds towards sustainability. Practical exercises related to subject contents will help us gain a global understanding of the subject. The student will design a weekly digital portfolio showing all the presentations, notes, sketches and basic literature and websites consulted during the whole academical year (part 1). This constant effort will be evaluated at the end of the semester.

The weekly deliveries will help the students to prepare the text (part 2) evaluating the basic understanding of the content and its potential applicability.

A final project in teams (part 3) will complete the basic Introduction to Sustainability during this academic year.

All the sessions will be double (2:40 h) with a 10 minutes break.

As a complementary documentation, specific bibliography, webs, reports and videos will be suggested in every session to the students.

Teaching methodology	Weighting	Estimated time a student should dedicate to prepare for and participate in
Lectures	20.0 %	30 hours
Discussions	6.67 %	10 hours
Exercises	26.67 %	40 hours
Group work	40.0 %	60 hours
Other individual studying	6.67 %	10 hours
TOTAL	100.0 %	150 hours

PROGRAM

SESSIONS 1 - 2 (LIVE IN-PERSON)

Important information: Some of the contents/dates may change due to several reasons. This change, if it happens, will be informed to the student in advance.

Introduction class.

Knowing each other. Meeting the group and introduction to the course: students and teacher dialogue.

Explaining the basics and the annual structure of the program and other general information.

Grading system.

Understanding Life Centered Design.

Introduction to Sustainability and why now!.

Readings, videos, films, documentaries suggested.

First week homework

This week you must watch actively one (although you can watch all of them) of the documentary suggested here:

1] Before the flood ()

2] Planetary boundaries (netflix)

3] Cities (Chapter 6 BBC Planet Earth II {<https://www.metacritic.com/tv/planet-earth-ii/season-1/episode-6-cities>}). Only if you have Netflix account.

After watching actively the movie, taking notes, etc., students may design individually one visually appealing and clear slide (could be in paper and then scan/photo) mind map making connexions from the several topics covered in the documentary in order to observe the interconnections of most of them. This exercise should help you to quit the lineal thinking. The map must be clear, didactic and well designed to share in class ONE PARTICULAR ASPECT (just one to give a chance to other peers). Free & professional style. Upload the work to the Campus online to share in class.

A minimum of 30-45 min. will be required for this first assignment.

Video: Before the Flood Full Movie National Geographic

Video: Planetary boundaries (netflix)

Video: Cities (Chapter 6 BBC Planet Earth II)

SESSIONS 3 - 4 (LIVE IN-PERSON)

The state of the planet

We will discover the state of the planet thanks to the voice of science and our personal research after the documentaries and readings. The Anthropocene geological age must be clearly understood.

Name of the 2nd assignment: **Water_homework #2**

The 2nd delivery Water_homework #2 will be (as usual) a free personal analysis of your week water consumption (domestic, personal, purchases, ...) calculating approximately at a yearly basis plus at global scale, guessing or measuring the water consumed in the particular aspects selected. What do you extract from this?...

A deep research of the Water Footprint indicator will enhance your perspective and scale.
The resources below will help you.

In your delivery, taking risks out of your comfort zone looking for potential and well framed solutions which will help us to understand this complex issue. The freshwater awareness today is taken into account in any responsible business and policies in Europe and other countries in the world.

Watch (8 min.video) <https://storyofstuff.org/movies/story-of-bottled-water/>

Read: <https://www.scientificamerican.com/article/is-there-really-a-freshwater-crisis/?redirect=1>

Go to: <https://waterfootprint.org/en/>

Remember: support your delivery from valuable readings and institutions reports through the research phase plus your personal approach, will empower your arguments.

Deliveries must be week by week more complex. The complex and connecting related issues (covered in class) plus a clear and personal designed slides will be deeply correlated with grading.

Video: The Story of Bottled Water

R.A.: Is There Really a Freshwater Crisis?

M.D.: Water footprint: Fair & smart use of the world's fresh water

SESSIONS 5 - 6 (LIVE IN-PERSON)

The Water footprint

We'll share in class our personal connexion with the Life supporting planetary element in our daily lives. We will link water and design mapping the Life Cycle Analysis with an ordinary daily consuming behaviour related to product/service choices.

Carbon footprint homework #3

SESSIONS 7 - 8 (LIVE IN-PERSON)

The thin essential layer: the atmosphere.

The global and local state of the Atmosphere will be covered here. This amazing physical layer provide not only oxygen, but also protection from solar UV radiation and a magnetic radiation shield. This unique Life's supporting element is in decline worldwide, with a serious deterioration quality specially in urban ecosystems, changing the climate patterns and making unsecure the survival from next generations.

A low carbon economy is a tangible metric strongly connected with the way how we design and making stuff in any particular sector from transportation to energy, food or even how you prototype in the IE Fab Lab...

The Carbon Footprint will help us to understand globally why we must concern the atmosphere in our design decisions, connecting elements of different systems such as food, fashion or waste.

Delivery 3: Carbonfootprint homework #3

1. Design a way to inform about your personal Carbon footprint related to the way how you eat, move, heat your room or dress. Think systematically taking into account for example the LCA (Life Cycle Analysis) to have a systemic perspective. One slide, a poster, a video... whatever way that you consider convincent to share in class. Be radical, be activist, we need a change in this crucial topic.

2. Also, in internet, look for a 1 min video to show in class and we'll vote the best one!.

Check: <https://www.carbonfootprint.com/>

Read some chapter of Mike Berners-Lee: How Bad Are Bananas?: The carbon footprint of everything. Ask for it in your IELibrary

SESSIONS 9 - 10 (LIVE IN-PERSON)

The soil. The ecological footprint.

The global and local state of the Soil, the factory of life. When we cover the soil, we are not talking about the concrete where we walk down the streets or in the many infrastructures found in cities. We'll try to understand how important is the soil, another essential Life's supporting element which is not present in our daily concerns. Everything in the economy starts with it.

Photosynthesis is in fact the magic act moving the world, not the money as we believe. Think about it.

Thanks to the Ecological Footprint, we have the chance to have access to your personal impact related with our life style.

Changing pattern in the way how you decide to live plus strategies from Design for Sustainability or Circular Design are both good examples to explore.

Delivery 4: Personal Footprint calculator_homework #4

You must calculate your personal ecological footprint understanding it and making progress differentiating with the other sustainable indicators.

Check and do it: <https://www.footprintnetwork.org/resources/footprint-calculator/>

Then, make an screenshot showing your results and design an slide with your thoughts.

We'll compare them in class. Be honest ;)

Explore also concepts such as overshoot and biocapacity for a full understanding (related to your country or any other you like -avoiding repeat with other peers). Use them in your designed slides.

Remember to compile all your work in a single digital designed document as a summary. This doc will be evaluated at the end of the program and it will help you to prepare the test.

SESSIONS 11 - 12 (LIVE IN-PERSON)

The state of the Biodiversity.

The importance of knowing the actual conservation status for the survival of Humans and the rest of Life is basic nowadays. Understanding the Human welfare state connected with the Ecosystemic Services provided by the biodiversity will help student to connect perceived isolated dots in a interconnected global ecosystem. The actual COVID-19 is intimately connected to the pandemic COVID-19. Did you know that?.

Delivey: Biodiversity_homework #5

This delivey will be coverd in pairs and will have a higher weight in the final grading.

-In pairs you have 10 min to show and convince your peers in class, how important biodiversity is globally not only for us as humans. Numbers, data,... are easy to forget, so avoid abusing of them. So, be creative in the way you design your presentation, images and speech. The fun can be also used.

Basic reading: Living Plante Report 2020 by WWF -World Wildlife Foundation-, reputed institution <https://livingplanet.panda.org>

This reading will open the student eyes of this relevant matter.

Additional reading: general opinion:

<https://www.theguardian.com/environment/2019/may/06/human-society-under-urgent-threat-lossearth-natural-life-un-report>

Essential watching, at least 1-2 (2 minutes videos): <https://www.conservation.org/nature-isspeaking/Pages/default.aspx>

Don't miss the Mother Nature with superstar Julia Roberts.

The messages from the videos could undoubtedly help you in your presentations. Do you understand most of them?. Are now evolving better?...

W.P.: Living Planete Report 2020 by WWF -World Wildlife Foundation

R.A.: Human society under urgent threat from loss of Earth's natural life (s-c)

Video: NATURE IS SPEAKING

SESSIONS 13 - 14 (LIVE IN-PERSON)

The state of Society and the SDGs.

This final element of the Sustainability Domain will provide understanding of the important issue today for designers: Social Innovation. Global discontent means something to you as a designer beyond your commitment as a citizen today.

Exploring different Social Footprints as well as emerging economies such as green, blue, collaborative, inclusive, sharing or circular economies will open our mind to alternative to the dominance of capitalism.

The re-designed new **Sustainable Development Goals** (SDG) by United Nations is a global path towards sustainability which will give us a better understanding for vibrant objectives for this century.

Delivery: Social footprint-SDG_homework #6

In this homework, you may have a fully understanding of the SDG [<https://sdgs.un.org/goals>] and try to connect them with a particular business or product you like. Avoid using multinational companies since we do not have the chance to be sure if it is true or not. So look for small ngos or local companies. There are extraordinary examples to inspire us.

Design 2 slides (1/SDG) in a great visual work showing 2 SDG selected and include something visually clear to identify the company.

You can try also testing your own designs from the 1st year and check if suits with any of the SDG.

SESSIONS 15 - 16 (LIVE IN-PERSON)

The Organic market and Certifications, greenlabels and greenwashing.

Exploring this growing and demanding designed way of producing daily products will provide a solution space to personal contribution for a better world. Understanding again the whys and the hows will give us new opportunities for a changing consumption choices as well as ecoeconomies opportunities.

A vision of the next edition of the Biocultura Fair in Madrid 2022 will help the student's perspective (<https://www.biocultura.org/madrid>) or BioFach in Germany will open your eyes.<https://www.biofach.de/en>

Delivey: Eco-labelling_homework #7

You must go to a local organic market, and select a couple of products from different sectors (cosmetics, food, cleaning...). Take a picture of the logos and labells and do it a selfie to be sure that you were there ;)

Then go to an industrial supermarket or your close shop and do the same.

At home search for information to compare the ingredients with special attention in one or two ingredients looking how healthy are for us, humans, for the soils, for the water... for the biodiversity.... Make connections!.

Also checking the seals/stamps.. identify those which are certifications and compare them with those "just" eco labelling. This exercise is very important to understand the differences.

Put all the info in 2-4 of slides to share in class. Try to divide the class in groups of interests to cover most of the sectors.

There are literally "tons" of good web sites to help you. This one is in spanish and an opportunity to practice your spanish <http://vidasana.org/>

Here just two references around alimentary #E additives...:

<https://www.healthplanspain.com/blog/health-tips/266-food-e-numbers-explained.html>

<https://medium.com/@reggs/seven-facts-you-didnt-know-about-e-numbers-9700e2343f53>

SESSIONS 17 - 18 (LIVE IN-PERSON)

Bird-ringing/banding activity outdoors.

The teacher will inform students about this exciting activity to reconnect with nature time in advance.

Homework #8_Bird ringing/banding poswork

SESSIONS 19 - 20 (LIVE IN-PERSON)

Part 2. Evaluation test

Introduction to biomimicry.

SESSIONS 21 - 22 (LIVE IN-PERSON)

Final Project presentation. Part 3

The topic is selected yet. Students will be informed with time in advance.

Understanding the scope

Evaluation criteria

Deliveries

Phases

Teams

Q&A

FP_ Research Phase: general scope

SESSIONS 23 - 24 (LIVE IN-PERSON)

Work in progress. Research phase

By Teams: show the data, the context and the potential hotspots to explore for the Design Phase.

Defining teams for the Design Phase.

Defining the potential sector to work.

Defining the deliveries to accomplish

SESSIONS 25 - 26 (LIVE IN-PERSON)

Work in progress. Research and preproposals definition.

Research and Design phase by teams.

Tutorships

SESSIONS 27 - 28 (LIVE IN-PERSON)

Design phase

Tutorships

Final communication advisories

SESSIONS 29 - 30 (LIVE IN-PERSON)

Final Presentation

Deliveries: Report, Prototypes, Maps, Communication phyles. Every document must be uploaded on Campus onlin (BBUltra).

Remember to use the GUIDELINES FOR WRITTEN ASSIGNMENTS BACHELOR IN DESIGN at IE covered and explained by the teacher Clara Zarza.

This criteria will be used without previous information.

Directors, teachers and other IEU staff and external guests will be in the audience.

EVALUATION CRITERIA

The evaluation of this particular subject consists of **4 different** ways where the student will show a global understanding of the subject. The four different criteria (constant effort + individual comprehension + working in a team in a particular challenge + active participation) will provide me with a good and a fair sense of the essential culture, awareness and decision making in this critical matter, the sustainability.

These parts are:

PART 1. Week by week, everyone will design a culture about sustainability during the first period through personal research and application, readings, and everything they consider essential to achieve. This part will be essential to develop critical thinking about the actual global situation and the need for solutions.

The student will have a fixed number of topics to share in class. All the students then will have to present their homework. All the deliveries in this **Part 1 will be graded at the end of the program.** This Part 1 will help the student prepare the Part 2, the test.

A total number of 8 homeworks must be developed by each student at the end of the program. Two of these will be shared in class by the students and the whole deliveries will be compiled as one single document to be evaluated at the end of the program.

PART 2. Test (multiple choices, true/false style, ...) where students will mark the answers in a non-memory evaluation where systemic connections and design and consumption patterns will be tested.

PART 3. Final Project. During the last part of the year, a student in teaming will scan the actual state of sustainability of the IEU Campus to design alternatives freely to enhance the situation.

PART 4. Active class participation.

All this content will explain during the first class.

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Retake policy

Students failing the course in the first regular period will have to do a retake in July (except those not complying with the attendance rules, which are banned from this possibility). The dates and location of this period will be posted in advance and will not be changed. Please consider this when planning your summer.

The maximum grade that a student may obtain in any retake will be 8 out of 10.

The retakes will consist of a comprehensive exam. The grade will depend only on the performance in this exam (continuous evaluation over the semester will not be taken into account). This exam will be designed bearing in mind that the passing grade is five (5), and the maximum qualification will be eight (8).

Criteria	Percentage	Comments
Individual Presentation	20 %	
Intermediate Tests	30 %	
Final Project	30 %	
Class Participation	20 %	

PART 1 (20%): Presentations will be required week by week. Some of them will be prepared in pairs. Not all of them have the same grading weight.

PART 2 (30%): Basic test evaluating global comprehension and applicability of the culture gained.

PART 3 (30%): Final project. Grading criteria will be explained clearly at the time.

PART 4 (20%): Active and motivating participation in class, debating and showing a positive attitude.

All the criteria will explain in detail during the first session in class for a fulling understanding

IMPORTANT INFORMATION:

Students are informed that only the delegates will have permission to email me. We will have weekly sessions, so sufficient available time to discuss and clarify any particular issue face to face.

Any email received ignoring this primary rule will affect final grading. Delegates will send individual/collective doubts from the classes on Fridays from 10 am-12 pm. Answers will take place either in class or through email.

CODE OF CONDUCT IN CLASS

1. Be on time: : Students arriving more than 5 minutes late will be marked as "Absent". Only students that notify in advance in writing that they will be late for a specific session may be granted an exception (at the discretion of the professor).

2. If applicable, bring your name card and strictly follow the seating chart. It helps faculty members and fellow students learn your names.

3. Do not leave the room during the lecture: Students are not allowed to leave the room during lectures. If a student leaves the room during lectures, he/she will not be allowed to re-enter and,

therefore, will be marked as "Absent". Only students that notify that they have a special reason to leave the session early will be granted an exception (at the discretion of the professor).

4. Do not engage in side conversation. As a sign of respect toward the person presenting the lecture (the teacher as well as fellow students), side conversations are not allowed. If you have a

question, raise your hand and ask it. If you do not want to ask it during the lecture, feel free to approach your teacher after class.

If a student is disrupting the flow of the lecture, he/she will be asked to leave the classroom and, consequently, will be marked as "Absent".

5. Use your laptop for course-related purposes only. The use of laptops during lectures must be authorized by the professor. The use of Social Media or accessing any type of content not related to the lecture is penalized. The student will be asked to leave the room and, consequently, will be marked as "Absent".

6. No cellular phones: IE University implements a "Phone-free Classroom" policy and, therefore, the use of phones, tablets, etc. is forbidden inside the classroom. Failing to abide by this rule entails expulsion from the room and will be counted as one absence.

7. Escalation policy: 1/3/5. Items 4, 5, and 6 above entail expulsion from the classroom and the consequent marking of the student as "Absent." IE University implements an "escalation policy":

The first time a student is asked to leave the room for disciplinary reasons (as per items 4, 5, and 6 above), the student will incur one absence, the second time it will count as three absences, and from the third time onward, any expulsion from the classroom due to disciplinary issues will entail 5 absences.

PROFESSOR BIO

Professor: **MANUEL QUIRÓS GALDÓN**

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MANUEL QUIRÓS GALDÓN

I have been involved for the last 25 years working in areas related to Nature, from academics, research, dissemination, implementation and development. After ten years as a postdoctoral researcher at the Polytech University Madrid researching an endangered freshwater fish, I decided to explore non-environmental education institutions to share the need to be aligned with Nature.

I was a member of the Sustainable staff at private Design Schools for more than 13 years where I was a team member of a pioneer sustainable academic program in all the design divisions from fashion to product for undergraduate and master. Subjects such as Education for Sustainability and Biomimicry, where very disruptive way to design according to Nature. Both during the beginning of the XX century were truly innovative in design schools.

At IE, I am the Head of a pioneering Slow Fashion Lab <https://ieulabs.ie.edu/ieulabs/slow-fashion-lab/> with private companies (Pepe Jeans, El Ganso, El Corte Inglés, The Ocean Born Foundation, Hemper, Parafina, ...) where 20 students have the chance to work for hand by hand with the brands. The Slow movement is strongly aligned with sustainability. I'm also teach in Advanced Seminars and in the Master of International Development from the School of Global & Public affairs, where I am the Director of several Capstone projects.

Every year since 2016, I used to travel with MSc students to the Colombian Amazonia to explore how design can enhance potentially the life quality of local indigenous communities, through social innovation projects, in collaboration with the government and Fundación Omacha. This activity was cancelled due to the pandemics and I'm working again to repeat this unique experience.

In addition, I'm the Founder of several non-lucrative associations (Green-signs, Biomimicry Iberia, Planeta Biomimético España and Red 3I Biomimesis), disseminating the message of sustainability to numerous media (government, civil society, Radio, TV, publications, books, conferences ...).

Author of the unique blog in Spanish on Biomimicry, and Manigua, a series of YouTube records with relevant people where Nature was at the core of the decision-making. Additionally, I'm a collaborator contributes to the award-winning journal Zygote Quarterly Journal.

I currently collaborate with companies to implement Biomimicry and sustainable innovation like ArcelorMittal (a global leader in steel production). Manuel is invited year by year to participate in forums, symposiums, media, TV, newspapers... to discuss the non-technological perspective on the new world. Last year, for instance, I was a speaker at the ONUHabitat conference invited by the País Vasco Government in Bilbao, Spain, or during the COP 25 in Madrid. He is also designing Superior Educational Programs in Bolivia or Colombia by governmental request.

I'm also teaching as a part-time in several universities such as ESIC Business University, University of Navarra-Catedra de la Unesco de la Universidad del País Vasco; Robert H. Smith School of the Business University of Maryland, to mention the more relevant ones.

I have a degree in Zoology from the Complutense University of Madrid; a Master's in Aquaculture from the University of Stirling, Scotland and a PhD from the Polytechnic University of Madrid, where he was in a post-Doc researcher position for a decade.

I have more than 140 publications including scientific and divulgating.

More info:

Biomimicry Consultant site | Blog : <http://natureinspireus.com>

MQ bio: <http://natureinspireus.com/sobre-manuel/m-q/>

Full CV: https://www.natureinspireus.com/wp-content/uploads/2020/09/cvMQweb_ago20.pdf

Wildlife-art: <http://www.manuelquiros.com>

Linkedin: <https://www.linkedin.com/in/mquiros-biomimicry/?originalSubdomain=es>

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OTHER INFORMATION