CRAFT IN DIGITAL MANUFACTURING
Credits: 30
Language: English
Duration: from January 16th to July 24th 2020
The enrolment will be active from January 7th 2020, until the official submission of the student’s records, which will be executed on December 31st 2020.
Timetable: Monday, Wednesday and alternate Fridays 6.30pm to 10.40pm

The educational planning of all IED Master courses is based on the criteria set by the European Higher Education Area (EHEA). IED Master employs a system of credits that follows the structure of the European Credit Transfer and Accumulation System (ECTS). IED issues its own exclusively private Master’s degrees. Courses in English require an intermediate level, corresponding to TOEFL or IELTS 6.5. Please bear in mind that: Some sessions may take place outside these hours in the case of making up for missed classes or extra activities.
Introduction

The revolution in digital manufacturing has become the cornerstone of industry 4.0, on the one hand it’s creating new business models, and on the other it’s becoming the standard in very competitive sectors such as automotive, healthcare and aerospace.

The creative industry and the industrial sector in which it converges, demand highly specialized profiles who understand this new paradigm shift. It is necessary to create new professional profiles that are capable of implementing digital fabrication technologies and keep track of the constant evolution that occurs around them and the possible projects that may arise from their ecosystem.
# General course objectives

The aim of the Postgraduate is to provide students with the necessary knowledge and tools that allow them to use digital fabrication technologies in their future projects, shaping their overview of the process of digital and analogue crafts and expose them to new design methodologies applied in the field of digital fabrication.

- Identify what type of digital fabrication technologies apply to the project or to the design process.
- Understand how to work within an environment where both analogue and digital industries come together.
- Create bespoke products or services focusing on Human-centered design.

## Learning outcomes

After completing the course, the students will be able to:

- Bring customer-focused products to the market with added value for society, the environment or the individual.
- Identify the proper digital fabrication technologies for future projects.
- Dominate the terminology used within digital (professional) fabrication processes.
- Acquire an in-depth knowledge of crafts and explore how technology can add value.
- Prepare professional projects for additive, subtractive and formative technologies.
- Understand the inherent advantage of digital fabrication processes over traditional ones and use that knowledge to make better design decisions.
- Acquire the necessary skillset for collaborative innovation within the digital fabrication ecosystem.
- Understand the paradigm shift within Additive Manufacturing.
- Being able to use common 3D modelling and visual programming software tools used in digital fabrication.
- Know the principles of mass customization and the tools used to create bespoke products.
**Target Audience**

The course is aimed at professionals working in the creative industries who want to push the boundaries of digital fabrication in their field of expertise. Professionals and graduates in Fashion, Fine arts, Design or Architecture fields. Applicants require a basic knowledge of 3D modelling and design thinking, and will be asked to submit their creative portfolio for review.

**Career outlook**

Possible career positions include:
- Innovation manager
- Creative director
- Product & concept designer
- Project manager
- Business developer
IED Master school provides continuing training, qualifications, specialisations and the chance to keep up-to-date with all aspects of design, backed by the rich historic and cultural heritage of Italian design.

Our strategy for the future is always in tune with social, environmental and financial macrotrends, and we keep a watchful eye on the changes that our cities and surroundings will need to adapt to over the coming 30 years. We believe that we can provide answers and solutions through design.

Our teaching here at IED Master is based on the four scenarios we consider crucial to face the needs of the future: design for sustainable development, design for new business models, design for new media and design for people.

Our goal is to train professionals who are capable of harnessing cultural values and design tools to not only overcome the challenges of the future, but create and drive innovation. We want our students to take responsibility for their training path and learn how to steer it with the support and tutoring of experts and professionals.

At IED Master, we see the School as a laboratory where students can be innovative, enterprising and a driving force; where they are free to experiment and create.
Teaching programme content

The postgraduate course is divided into complementary modules that grow in complexity as the postgraduate progresses.

The entire process ends with an individual practical project. The project gives students the opportunity to put into practice what we learned during the postgraduate course and verify the viability of them in the support of a sponsoring company.

Class time is divided into theoretical classes taught by renowned practitioners, workshops, city tours to explore innovative on-site businesses and discussions with professionals to learn their opinions and knowledge.

Module 1: Fundamentals of digital fabrication
- History, present and beyond
- Exploring the landscape of available technologies
- Materials 4.0
- Digital fabrication applications & cases
- Technology specific design rules
- Emerging technologies & trends
- Workshop

Module 2: Toolbox for digital fabrication
- Rhino: advanced 3D modelling
- Grasshopper: visual programming of complex geometries
- How to prepare files for digital fabrication
- Creating 3D content: 3D scanning tools and applications
- Workshop

Module 3: Digital fabrication & industry 4.0
- How’s the paradigm shift affecting our design process?
- Challenges of IP
- Mass customisation & personalisation
- New business models
- Workshop

Module 4: Design thinking and the new paradigm shift
- Discovery approach & agile methodologies for innovation
- Design thinking as a strategic tool
- Co-creation and manufacturing
- Visual thinking
- Workshop

Module 5: Craft & digital fabrication
- The digital craftsman: exploration of new future scenarios
- New strategies between the analogue and the digital
- Project about the crossover between technology and craft
- Workshop

Module 6: Sustainability
- From prototyping and production to a different type of eco-system
- Recycling & Upcycling; exploring ecological alternatives
- Green materials: nature as architect
- Workshop

Module 7: Final project

Please bear in mind that the management board of the Istituto Europeo di Design reserves the right to change the curriculum in accordance with any requirements that may arise as regards its educational objectives.
Coordinator

Tito Favaro
Industrial designer specialized in human factor - ergonomics. Over 14 years of experience in product and service development, collaborating with companies and multinationals such as Hewlett Packard, Applus +, Pal robotics, Universal robots, RuckerLipsa, Alstom, Caf, STE Group, Ideaded, Xavier Garcia, Evaluz, or Nacar design.

He guest lectured in institutions like Ramon Llull University, UPC Polytechnic University of Catalonia, Institute of Robotics and Industrial Computing of Catalonia, CSIC Superior Council of Scientific Investigations of the Spanish State, Eina school design, IED Barcelona school design, Design school of the Balearic Islands, Univerty of Gagrobo Bulgaria.

Joris Debo
Industrial designer and co-founder of Spanish based fashion brand Revisited. Over 16 years of experience in the field of Additive Manufacturing as Creative Director of Materialise and as freelance 3D printing specialist for the Creative Industries. Build up a vast experience in a wide variety of fields such as consumer products, furniture and lighting design, art & conservation and fashion. Collaborated with artist such as Iris Van Herpen, Frank Stella, Threesafour, Mariko Mori, Wim Delvoye,... and worked on concepts for companies like Nike, Habitat, Cartier, Delvaux, Nars,...

He guest lectured in institutions like Harvard University (USA), Columbia University (USA), Pratt Institute (USA), The New School (USA), Red Dot Academy (China) among others and collaborated closely with museums like the V&A museum (UK), Metropolitan Museum of Art (USA), Museum of Art & Design (USA),...
### IED Master academic offer

At IED Master, a whole range of courses are taught to cover all kinds of training needs: Masters, Postgraduate Courses and Continuing Study Programs. Courses are organised in terms, and can last 3, 6, 9 or 12 months. This means that some courses can be combined within one academic year, while others may be divided depending on how demanding and specialised they are.

### Masters

- **60 credits**

Top quality courses to specialise in a certain field of design, communication or management. Students gain the know-how, tools and skills to provide professional solutions.

### Postgraduates

- **30 credits**

An opportunity for all kinds of design professionals to become better qualified.

### Continuing Study Programs (CSP)

- **15 credits**

These courses are a chance for professionals to update and broaden their knowledge of design and creative methodologies.

### Summer Courses

In July, IED Barcelona offers students the chance to live an intensive training experience thanks to its broad range of summer courses. Coming to our Summer School is an experimental journey through different courses in which to learn and have fun in an international, multicultural environment. The courses are divided into different levels depending on the student’s profile: Professional, Advanced and Introductory.
The opportunity
To combine
Courses
IED Barcelona has special relationships with institutions and small, medium and large companies, which take an active part in projects, workshops, talks and activities, with the aim of providing the students with knowledge, communicating experiences and sharing both creative and theoretical aspects with them. All the final thesis are carried out as part of a collaboration with a company, giving the students training in their future profession and helping them develop relationships in the labour market.
IED Barcelona has collaborated with more than 100 national and international companies and institutions.
The aim of the Student Center is to offer a welcome and consultation service to students who need this. It pays particular attention to foreign students, helping them to adapt to their new environment. The department wants to be a place that helps to improve and enrich the experience of being a student at the school in every way possible.

This section offers students the possibility of course-related and extracurricular internships with companies in their sector. It also facilitates contacts with the labour market for students who have completed their studies. It enters into direct contact with companies in the different sectors: fashion, design, communications, management, marketing, etc. in order to create collaborative links and offer opportunities of internships and jobs.

Possibility of personal and confidential assistance by an expert psychologist.

Practical work is essential in IED Barcelona training, so its premises have basically been divided into classrooms, workshops and laboratories adapted to each area. The school’s facilities include: 26 classrooms, 6 multimedia labs equipped with PCs and Macs, 4 product, interior and transport design workshops, 9 fashion workshops, one printing centre and one photo and video studio.

Exclusive tools for the IED Community.

School’s students can use the software included in the Adobe Creative Suite, without any additional cost, both in the school’s computers and their own laptops. Therefore, all throughout their years enrolled in the school, students can enjoy for free the following applications: Adobe Photoshop® CC, Adobe Illustrator® CC, Adobe InDesign®

All the students can also download the Microsoft Office 365 for free. It includes the software Word, Excel and PowerPoint

School’s students can use Autodesk, world leader in 3D design software for entertainment, manufacturing, engineering, etc. Therefore, the students can enjoy for free applications such as AutoCAD, Maya or 3ds Max, etc.

Emerald, another tool currently used in the most outstanding universities in the fields of management, marketing and communication, is a worldwide editor that connects research and practice for the benefit of society. Students can access to more than 290 magazines and 2,000 books.

The whole IED Community, from computers in the Library, can freely access to WGSN, the leading online platform to analyse and forecast trends in current lifestyles and consumption.

Digital records of famous magazines, including practically every edition from the very first issue to the most recent ones. All of the content has been indexed and can be accessed via the library computers.

The whole IED Community, from computers in the school, can freely access to Material Connexion, the world’s leader database in material innovation.

The whole IED Community has an unlimited Gmail account.
General entry requirements

Students must provide the following information:

- Copy of DNI (Spanish students) or passport (foreign students).
- Copy of university degree (bachelor’s, degree or equivalent).
- Letter of motivation in the language of the Master’s degree course.
- CV in the language of the Master’s degree course specifying language and IT skills.
- Language certificate: Courses in English require an intermediate level, corresponding to TOEFL or IELTS 6.5. Courses in Spanish require a B2 language level. If a prospective student has neither of these certificates, his or her language skills will be assessed in a face-to-face interview or via a Skype call.
- Portfolio for creative Master’s degree courses and/or admission exercise if required.
- Students with a university degree can be admitted into the programmes, while those without may be admitted into specific programmes on the basis of their professional merits. In the latter case, it will be at the discretion of IED Barcelona to determine what type of certification will be obtained.

Fees

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For information about reductions on the Tuition Fee amount for Anticipated Enrolment please contact the Orientation and Admissions Department.