

Name	TouchDesigner fundamentals bridging hardware and visuals: real-time data flow, sensor input, and interactive sound
Codes	M-SZ-E-301-FS-262701-15 / ER-MOME-MA-262701-15
Host	MA School
Location	<u>Classroom</u>

Course info			Subject info			
Course Type	Contact hours	Home study hours	Comprehensive Subject	Subject type	Semester	Subject credit value
Seminar	36	102	Elective	R&D, Elective	2026/2	5

Recommendation
This course is intended for students who would like to gain a practical foundation in TouchDesigner. No prior programming or electronics experience is required. Everything is built during class, step by step: each session adds one new capability to the same project file, and by the end of the semester that file has grown into a finished, working piece.
Short description
The course introduces the TouchDesigner environment through one continuously growing project. We begin with the interface and network thinking, then move on to generative image making, working with live data, and shaping a raw signal into something usable. A recurring theme is the bridge between the digital and the physical: students connect microcontrollers and sensors to TouchDesigner and use real-time input to drive image, sound and light. The course builds a focused working vocabulary of around twenty-five operators together with the concepts that make them make sense, and teaches how to find and learn the rest independently. Each session opens with a short technical look at a real installation. The semester closes with a presentation of the finished projects and a short video documentation of each piece.

Name	Contact information	Short BIO	Open hours
Gergő Gábor Péri	peri.gergo@gmail.com	Media designer, interactive installations.	1 hour a week, by appointment

Course scheduling	
Course format	Weekly class appointments

Group and individual consultations according to a pre-announced schedule, guest lectures and workshops		Thursday 16:40-18:50	
Details of each session’s type and schedule, showing the teacher’s role			
Week	Date	Weekly educational content	Studio/workshop
1	2026.09.10	(Session 1) Introduction to TouchDesigner: the interface, node networks, and building a first working patch.	Online, recorded
2	2026.09.17	(Session 2) Signal thinking: normalising any input to a 0–1 range and mapping it onto a parameter.	Online, recorded
3	2026.09.24	(Session 3) Generative image: TOPs, layering and feedback. Each student starts the file that becomes their final project.	Workshop
4	2026.10.01	(Session 4) Physical input: a microcontroller and sensor take over from the mouse, while the rest of the network stays unchanged.	Workshop
5	2026.10.08	(Session 5) From raw data to usable control: smoothing, thresholds and hysteresis (Lag, Filter, Limit, Trigger).	Workshop
6	2026.10.15	Course Week	
7	2026.10.22	(Session 6) Memory and time: Timer, Count and Feedback. How the system behaves when nobody is there.	Workshop
8	2026.10.29	(Session 7) The same value in another body: driving sound and addressable light from the same signal.	Workshop
9	2026.11.05	(Session 8) Opening the project up: a browser interface for the running project, and an introduction to MCP servers.	Workshop
10	2026.11.12	(Session 9) Making it hold: Perform mode, custom parameters, start-up and error handling.	Workshop
11	2026.11.19	(Session 10) Project work: choosing a direction, individual consultation.	Consultation
12	2026.11.26	(Session 11) Project work: building, and peer testing of each other's pieces.	Consultation
13	2026.12.03	(Session 12) Final presentation: the works running in the room, presentations and submission.	Presentation
14			
15			

Course completion requirements, prerequisites, and evaluation
Students' duties

Requirements, assignments	Form of evaluation	Evaluation criteria	Deadline	% in evaluation
10 mins Presentation & Pitching	Presentation (visual introduction of the class work)	Active participation in the classes The project runs, and the student can explain what it responds to	12th, 13th Week	60
Video documentation (1.5 mins)	Submitted through Teams Forms	Clarity, consistency	13th Week	40
General requirements				
e.g. eligibility criteria for the exam, free-form description				

Course materials and literature
Mandatory literature
<i>Derivative</i> • <i>TouchDesigner Official Wiki Documentation</i> • <i>Note: Essential reference for every operator and core concept. This is the TD "textbook."</i> <i>Elburz Sorkhabi</i> • <i>An Introduction to TouchDesigner</i> • <i>Note: Free, open-source introductory book covering TD fundamentals. (Downloadable)</i> <i>TouchDesigner OP Snippets</i> • <i>OP Snippets (Accessible within the software)</i> • <i>Note: Quick, built-in examples demonstrating the function of individual operators.</i>
Course notes and presentations
Recommended literature
Bileam Tschepe (elektronaut) • https://www.youtube.com/@elektronaut The Interactive & Immersive HQ • https://www.youtube.com/@TheInteractiveImmersiveHQ Matthew Ragan • https://www.youtube.com/@raganmd Polyhop • https://www.youtube.com/@Polyhop

Learning outcomes	
Knowledge	Critical understanding of temporal processes and media visualization techniques, with a systems thinking approach

Attitude	Planning and deploying prototypes according to measurable data & feedback. Independent analysis, with a focus on aesthetic qualities and visual clarity
Autonomy and Responsibility	Independent decision making in the professional field
Skills	Planning and deploying prototypes according to measurable data & feedback mechanisms

Exemption
No exemption may be granted from participation in or completion of the course.

Curricular connections		
Subject	Parallel courses	Course proportion in subject
Subject prerequisites	Special subject prerequisites	Is it available as an elective?
		Yes

Guidelines and rules for the use of artificial intelligence in the course
The use of artificial intelligence at the university is subject to the Artificial Intelligence and Plagiarism Regulations of the Moholy-Nagy University of Art and Design.

Materials needed for the course	Who provides the materials?
Material requirement 1: ESP32 microcontroller with a small sensor kit (ultrasonic distance, PIR motion, potentiometer) — one per student, prepared and pre-programmed by the teacher	Tech Park
Material requirement 2: one Wi-Fi router for the classroom, and 3 shared addressable LED kits (strip, power supply, level shifter)	Tech Park

Other information, comments