

IMMERSIVE MEDIA DESIGN MAJOR (CMSC)

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The Immersive Media Design major offers students an interdisciplinary, intensive experience with the concepts, theories and tools for creating innovative works in immersive and other emerging technologies. Just as mobile technology has connected everyone to the world around them, immersive virtual and augmented reality is the next leap forward in the ever-expanding information revolution. By creating an independent, virtual world, or by overlaying, or augmenting, digital information atop real-world settings, immersive virtual and augmented reality allows people from all walks of life—health care professionals, educators, industrial workers, artists, and everyday people—to see and use the information that matters most to them. The creation of such immersive environments - utilizing a balance of skills in art, design, computer science and engineering—demands a new way of thinking. To answer this demand, the Immersive Media Design major - through a unique cross-campus collaboration of expert faculty members and resources at the University of Maryland will provide the scientific and scholarly foundations needed to advance the extraordinary potential of virtual and augmented reality applications. Immersive Media Design majors will be creative thinkers and makers who understand the impact technology has on our lives and are invested in exploring the creative potential inherent in emerging technology and media. Working in fields such as Augmented and Virtual Reality, Creative Coding, Digital Fabrication and Tangible Computing among others, the B.S. and B.A. in Immersive Media Design prepares students for professional roles through its cross-disciplinary, hands-on curriculum.

The first two years of coursework helps students develop mastery in a variety of tools and applications in computer science, art, visual communications, and related hybrid-practices. Through lecture and theory courses, they develop the critical thinking skills necessary to create compelling and original content for immersive media. During the last two years, students apply this knowledge to content and context-specific projects in both physical and digital environments. Students work on real-world projects in collaboration with industry sponsors.

The major has different tracks of academic study to afford mastery in target areas. Track One (Computing) is focused on the implementation and creation of computer science methods used in the creation of immersive media, whereas Track Two (Emerging Creatives) focuses on content creation and concept exploration from an aesthetic and artistic standpoint. Students who complete Track One will receive a B.S. in Immersive Media Design, whereas students who complete Track Two will receive a B.A. in Immersive Media Design. Though there are separate tracks in the major, all students in the major enroll in 'collaborative studio' courses, which foster a sustained collaborative work and study experience and which encourage students from both tracks to work together on team-based projects. Through this process students will gain a richer understanding of the field as a whole – technically-minded students in Track One will become conversant in artistic concepts and structures, while students in Track Two will develop an understanding of, and general proficiency in, the technical concepts and practices in the field.

Admission to the Major

The Immersive Media Design major is a Limited Enrollment Program. Please see the admission requirements and procedures at lep.umd.edu (<http://lep.umd.edu/>). (<https://lep.umd.edu/>) Students interested in Track 1 (Computing) are advised to look at the LEP requirements of both the IMDM and CMSC majors as the sets of requirements overlap.

Program Learning Outcomes

1. Technical proficiency, skill, and contextual knowledge of immersive media technologies, products, and applications so as to produce physical and digital works that are technically proficient, aesthetically engaging, and which demonstrate conceptual sophistication.
2. Deep learned cross-disciplinary problem-solving and collaborative skills in both technical and creative arenas.
3. Knowledge and proficiency in user-centered practices as they pertain to the development and application of immersive media projects.
4. Capacity to adapt to new technologies, concepts and processes as well as anticipate new technical and conceptual developments in this emerging field.
5. Computing track: Technical proficiency in the development of coding structures and algorithms central to the practices of immersive media.
6. Computing track: Fluency in the methodologies of computer graphics programing for real-time and AR/VR contexts.
7. Computing track: Ability to create and implement user-facing tools and algorithms for immersive media design.
8. Computing track: Ability to critically evaluate and apply relevant areas of immersive media scholarship.
9. Computing track: Ability to anticipate and adapt to the advent of new technological concepts, methods and practices in the field.
10. Emerging Creatives track: Ability to effectively communicate ideas and concepts visually through the use of immersive media conventions.
11. Emerging Creatives track: Technical proficiency in common methods of content creation for immersive media such as creative coding, digital fabrication, physical computing, and 3-D modeling.
12. Emerging Creatives track: Ability to critically evaluate works of creative technology in terms of their formal, conceptual, historical and social impacts.
13. Emerging Creatives track: Ability to appropriately couple new technologies with traditional media in the creation of tangible immersive media projects.
14. Emerging Creatives track: Ability to market and promote ones work through portfolio development and business planning.

Requirements

Immersive Media Design majors complete a rigorous set of courses in Art (ARTT), Computer Science (CMSC) as well as Immersive Media (IMDM). The courses differ by track. Students in Track 1 (Computing) take introductory courses at the core of the Computer Science major, a common set of ARTT courses, and the IMDM sequence. Students in Track 2 (Art) take the core of the Art major, a set of introductory computing courses, and the IMDM sequence.

For students in Track 1 who are transferring to UMD, the Computer Science Department offers exemption exams for the required courses CMSC131, CMSC132, CMSC216 and CMSC250. Students who have had

CS courses prior to starting at Maryland are encouraged to schedule and take exemption exams. These courses are not required for Track 2.

Computing Track

Course	Title	Credits
ENGL Elective (Choose one of the following):		3
ENGL143	Visualizing Knowledge: From Data to Images	
ENGL245	Film Form and Culture	
ENGL255	Literature of Science and Technology	
ENGL290	Introduction to Digital Studies	
ENGL294	Persuasion and Cleverness in Social Media	
MATH140	Calculus I	4
MATH141	Calculus II	4
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
CMSC216	Introduction to Computer Systems	4
CMSC250	Discrete Structures	4
CMSC330	Organization of Programming Languages	3
CMSC351	Algorithms	3
Major Elective: CMSC 4xx (Graphics Programming)		3
CMSC Elective: CMSC 4xx (Graphics Programming)		3
ARTT100	Two-Dimensional Design Fundamentals	3
ARTT200	Three-Dimensional Art Fundamentals	3
ARTT255	Introduction to Digital Art and Design Processes	3
Major Elective: ARTT37x/47x (Digital Media)		3
IMDM101	Introduction to Immersive Media (Introduction to Immersive Media)	3
IMDM150	(Introduction to Digital Theory and Culture)	3
IMDM227	(Introduction to Computational Media)	3
IMDM290	(Collaborative Studi I - Image + Time)	3
IMDM327	(Augmented and Virtual Reality)	3
IMDM390	(Collaborative Studio II Experiential Computing)	3
IMDM490	(Capstone I)	4
IMDM491	(Capstone II)	4
Total Credits		77

Emerging Creatives Track

Course	Title	Credits
ENGL Elective (Choose one of the following):		3
ENGL143	Visualizing Knowledge: From Data to Images	
ENGL245	Film Form and Culture	
ENGL255	Literature of Science and Technology	
ENGL290	Introduction to Digital Studies	
ENGL294	Persuasion and Cleverness in Social Media	
MATH115	Precalculus	3
CMSC122	Introduction to Computer Programming via the Web	3
ARTT100	Two-Dimensional Design Fundamentals	3
ARTT110	Elements of Drawing I	3
ARTT200	Three-Dimensional Art Fundamentals	3
ARTT210	Elements of Drawing II	3
ARTT255	Introduction to Digital Art and Design Processes	3

ARTT370 or ARTT371	Elements of Digital Media	3
ARTT47X	(Advanced Digital Media Choice: 479a/c/d/e)	3
IMDM101	Introduction to Immersive Media (Introduction to Immersive Media)	3
IMDM127	Creative Coding for Digital Media	3
IMDM150	(Introduction to Digital Theory and Culture)	3
IMDM227	(Introduction to Computational Media)	3
IMDM290	(Collaborative Studi I - Image + Time)	3
IMDM350	(Advanced Digital Media Theory)	3
IMDM390	(Collaborative Studio II Experiential Computing)	3
IMDM490	(Capstone I)	4
IMDM491	(Capstone II)	4
Total Credits		59

Four Year Plan

Click here (<https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/>) for roadmaps for four-year plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a four-year academic plan can be found on the following pages:

- [4yearplans.umd.edu \(http://4yearplans.umd.edu/\)](http://4yearplans.umd.edu/)
- the Student Academic Success-Degree Completion Policy (<https://academiccatalog.umd.edu/undergraduate/registration-academic-requirements-regulations/academic-advising/>) section of this catalog

Advising

For general inquiries about joining the major please contact Immersive Media Design advising through the email imd@umd.edu, or visit [imd.umd.edu \(https://imd.umd.edu\)](https://imd.umd.edu)

Immersive Media Design: Computing (B.S.)

Current majors are required to attend advising every semester with their major advisor.

Academic Plan (link: https://obj.umiacs.umd.edu/immersivemediadesign/IMDM_Track_1_computing.pdf)

Immersive Media Design: Emerging Creatives (B.A.)

Current majors are required to attend advising every semester with their major advisor. Additionally students will also receive college level advising with the College of Arts and Humanities. For more information on ARHU Advising, please visit: <https://arhu.umd.edu/academics/advising/>.

Academic Plan (link: https://obj.umiacs.umd.edu/immersivemediadesign/IMDM_Track_2_art.pdf)

Questions? Email imd@umd.edu.