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Cover Sheet for In-State Institutions
New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	Capitol Technology University

Each action below requires a separate proposal and cover sheet.

- (●) New Academic Program
- ( ) New Area of Concentration
- ( ) New Degree Level Approval
- ( ) New Stand-Alone Certificate
- ( ) Off Campus Program
- ( ) Substantial Change to a Degree Program
- ( ) Substantial Change to an Area of Concentration
- ( ) Substantial Change to a Certificate Program
- ( ) Cooperative Degree Program
- ( ) Offer Program at Regional Higher Education Center

Payment Submitted: (●) Yes ( ) No

Payment Type: ( ) R*STARS # 99991 (●) Check # 99991

Payment Amount: 850.00

Date Submitted: 4/1/2026

Department Proposing Program	Computer Science
Degree Level and Degree Type	Bachelor of Science (B.S.)
Title of Proposed Program	Bachelor of Science in Interactive Media Technology and Design
Total Number of Credits	120
Suggested Codes	HEGIS: 701.00 CIP: 11.0804
Program Modality	( ) On-campus ( ) Distance Education (fully online) (●) Both
Program Resources	(●) Using Existing Resources ( ) Requiring New Resources
Projected Implementation Date (must be 60 days from proposal submisison as per COMAR 13B.02.03.03)	(●) Fall ( ) Spring ( ) Summer Year: 2026
Provide Link to Most Recent Academic Catalog	URL: http://catalog.captechu.edu
Preferred Contact for this Proposal	Name: Dr. Mohamed Shehata Title: Dean of Academics Phone: (340) 965-2473 Email: mshehata@captechu.edu
President/Chief Executive	Type Name: Dr. Bradford Sims Signature: [signature] Date: 4-1-26 Date of Approval/Endorsement by Governing Board: APRIL 1, 2026

Revised 1/2021

CAPITOL
Technology University

April 1, 2026

Dr. Elena Quiroz-Livanis
Deputy Secretary of Maryland Higher Education
Maryland Higher Education Commission
217 E. Redwood Street, Suite 2100
Baltimore, MD 21202

Dear Dr. Quiroz-Livanis,

Capitol Technology University is requesting approval to offer a Bachelor of Science (B.S.) in Interactive Media Technology and Design. This new degree program will be delivered by experienced faculty and supported by the University's existing instructional and computing infrastructure. It is designed to meet the growing workforce demand for professionals with expertise in software development, web and mobile applications, user experience (UX/UI) design, data visualization, and interactive digital systems.

The B.S. in Interactive Media Technology and Design aligns with Capitol Technology University's mission to provide a hands-on, career-focused education in science, technology, engineering, and mathematics. The program prepares students for immediate entry into professional roles in sectors such as software and web development, UX/UI design, digital media production, interactive systems design, and emerging technologies. Students will gain practical experience through project-based learning, portfolio development, and a senior design capstone sequence, ensuring readiness to contribute to Maryland's evolving technology and digital innovation workforce.

Interactive media technology and design is a rapidly growing and strategically important field that integrates computing, design, and digital content to support modern industries. This program expands access to high-quality technology education for students throughout the region and is structured to support transfer pathways, workforce development initiatives, and alignment with industry standards in computing and interactive technologies.

We respectfully submit the full proposal for the Bachelor of Science in Interactive Media Technology and Design for your review and approval. Enclosed is the required documentation, including the letter confirming the adequacy of library resources to support this program

Respectfully,

Bradford L. Sims, PhD

President

CAPITOL
Technology University

April 1, 2026

Dr. Elena Quiroz-Livanis
Deputy Secretary of Maryland Higher Education
Maryland Higher Education Commission
217 E. Redwood Street, Suite 2100
Baltimore, MD 21202

Dear Dr. Quiroz-Livanis,

This letter is in response to the need for confirmation of the adequacy of the library of Capitol Technology University to support the proposed Bachelor of Science in Interactive Media Technology and Design.

As President of the University, I confirm that the library resources, including support staff, are more than adequate to support the B.S. in Interactive Media Technology and Design. Additionally, the University remains dedicated and committed to the continuous improvement of its library resources by providing sufficient budget to ensure the success of our students.

Respectfully,

Bradford L. Sims, PhD

President

PROPOSAL FOR:

X NEW INSTRUCTIONAL PROGRAM
_____ SUBSTANTIAL EXPANSION/MAJOR MODIFICATION
COOPERATIVE DEGREE PROGRAM
X WITHIN EXISTING RESOURCES or _____ REQUIRING NEW RESOURCES

CAPITOL Technology University

Institution Submitting Proposal

Fall 2026
Projected Implementation Date

Bachelor of Science
Award to be Offered

Bachelor of Science in Interactive Media Technology and Design
Title of Proposed Program

0701.00
Suggested HEGIS Code

11.0804
Suggested CIP Code

Engineering
Department of Proposed Program

Dr. Mohamed Ghazy
Name of Department Head

Dr. Mohamed Ghazy
Dean of Academic

mshehata@captechu.edu
Contact E-Mail Address

(240) 965-2473
Contact Phone Number

4-1-26
Signature and Date

President/Chief Executive Approval

APRIL 1, 2026
Date

Date Endorsed/Approved by Governing Board

Bachelor of Science (B.S.)

In

Interactive Media Technology and Design (IMTD)

Capitol Technology University
Laurel, Maryland

A. Centrality to Mission and Planning Priorities

1. Program Description and Alignment with Institutional Mission

The Bachelor of Science in Interactive Media Technology and Design is a 120-credit undergraduate degree designed to prepare students for professional careers in the design, development, and implementation of interactive digital media systems. The program integrates computing, user experience design, multimedia production, and emerging technologies to develop graduates capable of creating innovative digital solutions across industries such as web development, mobile applications, gaming, immersive media, and data-driven visualization.

The curriculum emphasizes applied, hands-on learning through courses in programming, web and mobile application development, database systems, human-computer interaction, multimedia production, game programming, and immersive technologies such as augmented and virtual reality. Students gain experience using industry-standard tools and platforms to design, develop, and evaluate interactive systems. The program culminates in a two-semester capstone design sequence, where students work in teams to develop and implement comprehensive interactive media projects under realistic technical and design constraints.

In addition to technical coursework, the curriculum includes a strong foundation in mathematics and science (13 credits), general education and ethics (21 credits), and computing and technology core courses (36 credits) to ensure graduates possess problem-solving abilities, communication skills, and professional responsibility. Students also complete interactive media and design core courses (32 credits), an internship (3 credits), and general electives (9 credits), allowing for flexibility and exploration of specialized areas such as user experience design, game development, and immersive media.

This program aligns with the mission of Capitol Technology University, which is “to educate individuals for professional opportunities in engineering, computer and information sciences, and business. We provide relevant learning experiences that lead to success in the evolving global community.”

The B.S. in Interactive Media Technology and Design fulfills this mission by preparing technically skilled, creative, and ethically grounded professionals ready to meet workforce needs in interactive media, user experience design, software development, and emerging digital technologies.

The program supports Capitol’s Strategic Vision 2025, particularly through the following goals:

- Delivering STEM-focused, hands-on education aligned with interactive media, computing, and digital technologies.
- Supporting applied learning in user experience design, multimedia systems, and software development.
- Expanding academic offerings in high-demand fields such as digital media, UX/UI, and immersive technologies.
- Contributing to enrollment growth by attracting both traditional students and transfer students interested in creative and technology-driven careers.

2. Institutional Strategic Goals and Priority Alignment

The proposed Bachelor of Science in Interactive Media Technology and Design directly supports Capitol Technology University's strategic plan for academic expansion, student success, and workforce alignment. The program has been designed to address increasing demand for professionals skilled in interactive media, web and mobile development, user experience design, and immersive technologies, while maximizing the use of existing institutional resources.

The program supports **Goal I: Expand Educational Offerings and Increase Program Completion** by introducing an interdisciplinary degree that combines computing and design. Its applied, project-based structure and industry relevance appeal to students pursuing careers in web development, mobile applications, UX/UI design, game development, and digital media production. The inclusion of electives allows for flexibility and specialization in emerging areas.

It supports **Goal II: Increase Enrollment and Institutional Awareness** by attracting students interested in creative technology and interactive media. The program complements Capitol's existing offerings in computer science, artificial intelligence, and engineering, and creates opportunities for interdisciplinary collaboration across programs.

The program aligns with **Goal III: Improve Utilization of University Resources** through its reliance on existing courses, laboratories, and faculty expertise in computing, multimedia, artificial intelligence, and software development. Many of the required courses are already offered within current programs, enabling efficient implementation and shared instructional resources.

It also advances **Goal IV: Expand Partnerships and Industry Collaboration** by supporting engagement with industries in digital media, software development, gaming, and immersive technologies. The applied nature of the program enables strong alignment with regional workforce needs and supports internships, applied projects, and industry-sponsored initiatives.

Evidence of institutional priority includes:
a) The program was developed under the direction of the Office of Academic Affairs and the Dean of Engineering as part of a strategic initiative to expand interdisciplinary and applied technology programs.
b) The program concept was reviewed and supported through academic planning discussions due to its strong workforce relevance and alignment with institutional strengths in computing and engineering.
c) The curriculum leverages existing faculty expertise and laboratory infrastructure in computing, multimedia, and interactive technologies, ensuring efficient and high-quality program delivery.
d) The program contributes to enrollment growth by attracting students seeking career-oriented education in interactive media and digital technologies.

e) The program supports the university's long-term commitment to delivering innovative, practice-oriented education aligned with regional and national workforce demands.

3. Program Funding and Resource Commitment

The Bachelor of Science in Interactive Media Technology and Design will be funded through a combination of existing institutional resources, tuition revenue, and reallocation of instructional capacity within the School of Engineering and Computer Science.

Because the program builds upon existing courses in computer science, software engineering, multimedia, and artificial intelligence, it can be implemented without significant new investment in course development or facilities.

Existing laboratories—including computing labs, multimedia production environments, and software development platforms—are equipped to support instruction in programming, web and mobile development, data visualization, and interactive media design. Additional software tools and technologies related to UX/UI design, AR/VR development, and multimedia production will be acquired incrementally as enrollment grows and are included in the university's annual budgeting process.

Instruction will be delivered primarily by existing full-time faculty and qualified adjunct instructors with expertise in computing, artificial intelligence, multimedia systems, and interactive technologies. Class sizes and student-to-faculty ratios will remain consistent with other technology programs to ensure effective instruction and mentoring.

The program is expected to be self-sustaining within three years, with tuition revenue supporting instructional costs, software resources, and program operations.

The financial plan, reviewed by the Office of Academic Affairs and the Division of Business and Finance, confirms that the program can be delivered efficiently using shared institutional resources while maintaining high academic quality consistent with Capitol's technology and engineering programs.

Additional details regarding financial projections are provided in Section L.

4. Institutional Commitment

Capitol Technology University is fully committed to the success and long-term sustainability of the Bachelor of Science in Interactive Media Technology and Design program.

a) Ongoing administrative, financial, and technical support
The program will be administered within the School of Engineering and Computer Science under the supervision of the Dean. Administrative support, scheduling, and financial oversight will be coordinated through the Office of Academic Affairs. Existing computing infrastructure, multimedia tools, and instructional resources will continue to be maintained and upgraded to support evolving technologies in interactive media, artificial intelligence, and immersive systems.

b) Program continuity for enrolled students
Capitol Technology University guarantees program continuity for all students enrolled in the Interactive Media Technology and Design program. In the event of program modification or discontinuation, the university will implement a formal teach-out plan to ensure that all students can complete their degrees without disruption. The institution's accreditation and commitment to student success ensure stable and continuous program delivery.

B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan

1. Demonstrate demand and need for the program in terms of meeting present and future needs of the region and the State in general

a) The need for the advancement and evolution of knowledge

The Bachelor of Science in Interactive Media Technology and Design advances the development of interdisciplinary knowledge by preparing students to design, develop, and evaluate interactive digital systems used across a wide range of industries. The field of interactive media integrates computing, user experience design, multimedia systems, and emerging technologies, all of which are essential to modern digital innovation and communication.

The program integrates core areas—including programming, web and mobile application development, database systems, human-computer interaction, multimedia production, data visualization, and immersive technologies such as augmented and virtual reality—with modern tools and platforms used in industry. Students are trained to use industry-relevant technologies such as web development frameworks, mobile platforms, game engines, and multimedia production tools, ensuring alignment with Maryland's rapidly evolving digital and technology-driven economy.

By emphasizing applied learning, creative problem-solving, and system design, the program contributes to the State's capacity to develop a workforce capable of supporting advancements in digital media, software development, user experience design, and immersive technologies. Graduates are prepared to contribute to innovation, digital transformation, and user-centered system design across Maryland's technology and creative sectors.

b) Societal needs, including expanding educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education

The program is designed to expand access to high-demand careers in interactive media, computing, and digital technologies for students from diverse and educationally disadvantaged backgrounds. Capitol Technology University has a strong record of serving first-generation college students, underrepresented minorities, military veterans, and transfer students from community colleges.

The B.S. in Interactive Media Technology and Design builds on this mission by offering an interdisciplinary and application-oriented pathway into careers such as web development, mobile application development, user experience design, digital media production, and game development. The program's project-based learning approach, combined with small class sizes and faculty mentorship, supports student engagement, retention, and academic success.

Flexible scheduling, transfer pathways, and academic support services further enhance accessibility. These elements directly support statewide efforts to increase equity in STEM and technology-related education and workforce participation, particularly among underserved populations.

c) The need to strengthen and expand the capacity of historically black institutions to provide high-quality and unique educational programs

Although Capitol Technology University is not a Historically Black Institution (HBI), it supports statewide efforts to expand access to high-quality STEM and technology education through collaboration with Maryland's HBIs. These collaborations may include articulation agreements, joint outreach initiatives, and transfer pathways in computing and digital media fields.

The Interactive Media Technology and Design program complements offerings at HBIs by providing an interdisciplinary curriculum that integrates computing, user experience design, and multimedia technologies. This creates opportunities for future partnerships that enhance access and participation of underrepresented populations in interactive media, digital technology, and creative computing fields.

2. Provide evidence that the perceived need is consistent with the Maryland State Plan for Postsecondary Education

The Maryland State Plan for Postsecondary Education (2022–2031) identifies three overarching goals—Student Access, Student Success, and Innovation—each supported by specific statewide priorities. The proposed program aligns with these goals and priorities as follows:

Goal 1: Student Access

"Ensure equitable access to affordable and quality postsecondary education for all Maryland residents."

The B.S. in Interactive Media Technology and Design expands access to high-quality, career-oriented education in computing and digital media by serving a diverse population, including recent high school graduates, community college transfers, working professionals, and military personnel.

Capitol Technology University supports multiple entry pathways through articulation agreements, outreach initiatives, and transfer partnerships. Financial support options—including institutional scholarships, need-based aid, and veterans' benefits—help reduce barriers to participation.

The program directly aligns with the following State Plan priorities:

- **Priority 1: Affordability** – By leveraging existing courses and institutional resources, the program minimizes additional costs while maintaining high quality.
- **Priority 2: Financial Literacy and Student Supports** – Students benefit from advising, financial aid counseling, and structured academic pathways.
- **Priority 4: Access for Underserved Populations** – The program's interdisciplinary and applied structure expands participation among underrepresented and nontraditional students.

Goal 2: Student Success

"Promote and implement practices and policies that will ensure student success."

The program promotes student success through experiential learning, project-based instruction, and a structured progression of courses from foundational knowledge to advanced application.

Students engage in programming projects, multimedia development, user experience design, and interactive system implementation. The curriculum includes a two-course project sequence, an internship, and a capstone design experience, reinforcing technical, creative, and communication skills.

The program aligns with the following State Plan priorities:

- **Priority 5: Commitment to High-Quality Education** – The curriculum integrates applied learning, industry-relevant tools, and interdisciplinary content.
- **Priority 6: Timely Degree Completion** – Clear course sequencing, academic advising, and student support services promote on-time graduation.

- **Priority 7: Workforce Preparation and Career Readiness** – Hands-on projects, internships, and industry-aligned coursework prepare graduates for immediate employment.

Goal 3: Innovation

"Foster innovation in all aspects of Maryland higher education to improve access and student success."

The Bachelor of Science in Interactive Media Technology and Design reflects innovation in curriculum design and instructional delivery by integrating computing, design, and emerging technologies such as artificial intelligence, data visualization, and immersive media.

The program incorporates contemporary topics such as UX/UI design, web and mobile development, game programming, and AR/VR technologies. Project-based learning and experiential education provide innovative, hands-on learning experiences aligned with industry practices.

The program aligns with the following State Plan priorities:

- **Priority 8: Innovative Pedagogy** – Emphasis on project-based, experiential, and interdisciplinary learning.
- **Priority 9: Expansion of Innovative Academic Programs** – Introduction of a modern program combining computing and digital media technologies.
- **Priority 10: Work-Based Learning and Applied Experience** – Integration of internships, project-based courses, and capstone experiences tied to real-world applications.

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State

1. Potential Industries, Employment Opportunities, and Expected Level of Entry

Graduates of the Bachelor of Science in Interactive Media Technology and Design will be prepared for a wide range of careers in Maryland's rapidly growing digital, technology, and creative economy. Interactive media technology supports industries such as software development, web and mobile application development, digital media production, gaming, cybersecurity, data analytics, and immersive technologies including augmented and virtual reality.

Students completing the program will qualify for positions such as Web Developer, Front-End Developer, Mobile Application Developer, User Experience (UX) Designer, User Interface (UI) Designer, Multimedia Developer, Game Developer, Interactive Media Specialist, Data Visualization Analyst, and Digital Content Developer. These roles emphasize the design, development, and optimization of interactive digital systems and user-centered applications.

Graduates are expected to enter the workforce in entry-level positions focused on software development, interface design, multimedia production, and interactive system implementation, with opportunities to advance into senior developer, design lead, or project management roles with experience. The program's emphasis on hands-on learning, project-based coursework, and applied technologies ensures that graduates are prepared to contribute immediately to multidisciplinary teams in technology and digital media environments.

2. Market Demand and Employment Outlook

According to the U.S. Bureau of Labor Statistics (BLS, 2024), employment in computing and digital media-related occupations is projected to grow significantly faster than the average for all occupations over the next decade. Occupations closely aligned with this program—such as web developers, software developers, and multimedia artists—are projected to grow approximately 15–25 percent from 2023 to 2033, with strong demand driven by digital transformation, mobile technologies, and user-centered design.

The median annual wages for these roles are competitive. For example, web developers and digital designers earn a median annual wage of approximately $80,000–$95,000 nationally, while software developers and mobile application developers can exceed $110,000 depending on experience and specialization.

In Maryland, demand for professionals with skills in web development, user experience design, multimedia systems, and interactive technologies is particularly strong in sectors such as cybersecurity, defense, government contracting, healthcare technology, and digital media. Major employers include organizations such as Northrop Grumman, Lockheed Martin, Booz Allen Hamilton, Amazon Web Services, and numerous technology startups and digital media firms in the Baltimore–Washington corridor.

Data from the Maryland Department of Labor (2024) indicate continued growth in computer and mathematical occupations, with increasing demand for professionals skilled in software development, data visualization, and digital media technologies. Regional growth areas include:

- Web and mobile application development

- User experience (UX/UI) design and human-computer interaction
- Digital media and content creation
- Data visualization and analytics
- Immersive technologies (AR/VR) and gaming

These trends demonstrate a strong and sustained need for graduates with interdisciplinary skills in computing, design, and interactive media.

3. Market Surveys and Labor-Force Projections

Multiple labor-market analyses confirm sustained and growing demand for professionals with computing, digital media, and user experience design skills:

- The Maryland Department of Labor's Occupational Projections (2022–2032) highlight strong growth in computer and information technology occupations, including web development, software engineering, and digital media roles.
- The Georgetown University Center on Education and the Workforce (2023) projects that approximately 69 percent of jobs in Maryland will require postsecondary education or training by 2031, with significant demand in computing, data, and digital technology fields.
- The Maryland Statewide Workforce Development Plan (2024–2028) identifies information technology, cybersecurity, and digital innovation as priority sectors, all of which rely heavily on interactive media and software development skills.
- Real-time labor market data from Lightcast (2024) and LinkedIn Jobs indicate consistent job postings in Maryland for roles such as Web Developer, UX Designer, Front-End Developer, and Multimedia Specialist, particularly in the Baltimore–Washington metropolitan region.

These data confirm the increasing importance of interdisciplinary programs that combine computing, design, and applied digital technologies to meet workforce demands.

4. Current and Projected Supply of Graduates

The supply of graduates specifically trained in interdisciplinary interactive media technology remains limited relative to employer demand. While Maryland institutions offer programs in computer science, information technology, and digital media, fewer programs integrate programming, user experience design, multimedia production, and emerging technologies such as AR/VR into a single, application-oriented curriculum.

According to the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS, 2022), Maryland institutions produce a significant number of graduates in computing fields; however, there is a gap in programs that combine technical development skills with design and interactive media competencies.

At the same time, statewide employment data show thousands of open positions requiring skills in web development, software engineering, user experience design, and digital media production, indicating a persistent gap between workforce demand and the supply of graduates with interdisciplinary skill sets.

The proposed program at Capitol Technology University addresses this gap by providing a hands-on, project-based curriculum that integrates computing, design, and emerging technologies.

Enrollment projections for the Interactive Media Technology and Design program are as follows:

- Year 1: 15–20 students
- Year 3: 40–50 students
- Year 5: 60–75 students
- Graduates by Year 5: 10–15 annually

Graduates of the program will directly contribute to Maryland's workforce needs in computing, digital media, and interactive technology sectors—areas that continue to experience strong growth and demand for skilled professionals.

D. Reasonableness of Program Duplication

1. Identification of Similar Programs in the State and/or Same Geographical Area and Discussion of Similarities and Differences

Several institutions in Maryland offer programs related to media, communication, digital arts, immersive media, and computing. While these programs share certain elements with the proposed Bachelor of Science in Interactive Media Technology and Design at Capitol Technology University, they differ significantly in **technical depth, instructional approach, and intended career outcomes**.

a) Programs Classified under CIP 11.0804 (Interactive Media and Related Computing Fields)

The following programs are classified under CIP 11.0804 or closely related computing-based interactive media fields:

- **Bowie State University** – Virtual Reality and Gaming (Bachelor's Degree)
- **University of Maryland, College Park** – Immersive Media Design (Bachelor's Degree)

Similarities

- Emphasis on interactive media, immersive technologies, and user experience
- Exposure to graphics, simulation, and digital environments
- Inclusion of interdisciplinary elements combining technology and design

Differences

- These programs emphasize **immersive media, gaming, or design-oriented applications**, often with a focus on specific domains such as virtual reality or entertainment
- The proposed program provides a **broader and more comprehensive computing foundation**, including:
    - Programming (C, C++, Java)
    - Data structures and algorithms
    - Artificial intelligence
    - Web application development and database systems
- The proposed curriculum integrates **software engineering, AI, and full-stack development** with interactive media, distinguishing it from programs focused primarily on immersive environments or gaming

b) Media, Communication, and Digital Arts Programs (Primarily CIP 09 and CIP 10)

Maryland institutions offering bachelor's degrees in media, communication, and digital arts include:

- **Bowie State University** – Communication Media; Media Management; Visual Communication & Digital Media Arts; Digital Cinema & Time-Based Media; Digital Media Arts; Immersive Media, Entertainment, and Gaming
- **Frostburg State University** – Emerging Media
- **Johns Hopkins University** – Film and Media Studies; Music; Music for New Media
- **Loyola University Maryland** – Communication and Media

- **Maryland Institute College of Art** – Creative Media Production
- **Morgan State University** – Multimedia Journalism; Converging Media; Multi-Platform Production; Integrated Media Technologies & Production; Strategic Communication; Media Sales & Ratings; Screenwriting & Animation; Integrated Media Writing & Animation; Fine Art (Photo Media)
- **Notre Dame of Maryland University** – Digital Media Arts; Sports Media Production
- **Salisbury University** – English (Film/Media concentration)
- **St. Mary's College of Maryland** – Theatre, Film & Media Studies
- **Stevenson University** – Theatre and Media Performance
- **Towson University** – Film, Audio, and Media Arts; Film & Media Studies; Film/Video/Digital Media
- **University of Maryland, Baltimore County** – Visual Arts; Visual and Media Arts; Animation and Interactive Media; Print and Intermedia Arts; Media & Communication Studies
- **University of Maryland, College Park** – Cinema and Media Studies
- **University of Maryland Eastern Shore** – Digital Media Arts
- **Washington Adventist University** – Communication; Broadcasting Media; Graphic Art Media; Media Journalism
- **Washington College** – Communications and Media Studies

Similarities

- Incorporation of digital media, visual communication, and multimedia production
- Coursework in storytelling, design, and content creation
- Exposure to emerging media formats and interactive content

Differences

- These programs primarily emphasize **media production, communication, journalism, and artistic design**, rather than computing and software development
- Limited or no emphasis on:
    - Programming and software engineering
    - Artificial intelligence and data-driven systems
    - Full-stack web and application development
- These programs are generally classified under **CIP 09 or CIP 10**, whereas the proposed program is classified under **CIP 11 (Computer and Information Sciences)**
- Graduates are typically prepared for careers in **media production, communications, and journalism**, while the proposed program prepares students for **technical roles in software development, UX/UI design, interactive systems, and emerging computing technologies**

c) Computing and Web/Digital Technology Programs (CIP 11 Family)

Programs in Maryland classified under computing-related CIP codes include:

- **Capitol Technology University** – Web Design and Development (Bachelor's Degree)
- **University of Maryland Global Campus** – Web and Digital Design (Bachelor's Degree)
- **University of Baltimore** – Interaction Design and Information Architecture (Graduate Program)

Similarities

- Emphasis on web technologies, digital systems, and user experience
- Focus on applied computing and technology-driven design

Differences

- Existing programs typically focus on **either development or design**, but not the full integration of:
    - Interactive media
    - Artificial intelligence
    - AR/VR technologies
    - Multimedia production
- The proposed program provides a **comprehensive integration of computing, design, and interactive media systems**, distinguishing it from more narrowly focused programs

All potentially duplicative programs identified by the Maryland Higher Education Commission, including those classified under CIP 11.0804 and those identified through interactive media and media-related program searches, have been reviewed and are included in this analysis

2. Justification for the Proposed Program

The Bachelor of Science in Interactive Media Technology and Design at Capitol Technology University fills a distinct and necessary niche in Maryland's higher education landscape. The program complements existing offerings rather than duplicating them by addressing the gap between **media-focused programs** and **computing-intensive programs**.

a) Workforce Demand

Maryland's economy includes growing demand in areas such as:

- Digital media and interactive content
- Web and mobile application development
- User experience (UX/UI) design
- Gaming, simulation, and immersive technologies
- Artificial intelligence and data-driven applications

Employers increasingly require professionals who can **design and develop interactive systems**, combining technical computing skills with creative media capabilities.

b) Academic Need

The proposed program integrates:

- Programming and software engineering
- Artificial intelligence
- Web and database systems

- Interactive media design
- UX/UI and immersive technologies

Traditional programs typically separate **media creation** and **software development**. The proposed program bridges this gap through a **computing-centered, application-driven approach**.

c) Accessibility and Transfer Pathways

Capitol Technology University serves a diverse student population, including transfer students and working professionals. The proposed program supports pathways from:

- Associate degrees in multimedia, web development, and information technology
- Community college programs in digital media and computing

This structure promotes upward mobility and access to high-demand careers.

d) Institutional Alignment

The program aligns with Capitol Technology University's mission to provide career-focused, hands-on STEM education. It builds on institutional strengths in:

- Computer science
- Artificial intelligence
- Applied technology

The program supports Maryland's strategic priorities by:

- Expanding access to technology-focused education
- Supporting workforce development in digital and interactive industries
- Aligning with emerging fields such as AI, AR/VR, and user experience design

Based on this analysis, the proposed program does not result in unreasonable duplication and instead provides a distinct, computing-centered, interdisciplinary pathway not currently offered within the State.

E. Relevance to High-Demand Programs at Historically Black Institutions (HBIs)

1. Impact on the Implementation or Maintenance of High-Demand Programs at HBIs

The proposed Bachelor of Science in Interactive Media Technology and Design at Capitol Technology University is designed to complement, rather than compete with, existing high-demand programs offered at Maryland's Historically Black Institutions (HBIs). Institutions such as **Bowie State University, Morgan State University, and the University of Maryland Eastern Shore** offer programs in areas including communication media, immersive media, digital media, and multimedia journalism, which play a critical role in advancing access to education and workforce participation among underrepresented populations.

These HBI programs contribute significantly to Maryland's goals of increasing diversity in technology, media, and STEM-related fields, while preparing students for careers in communication, digital media production, and information systems. The proposed program differs in both academic focus and instructional approach. While many HBI programs emphasize **media production, communication, and digital arts**, the proposed program integrates **computing, software development, artificial intelligence, and interactive media design**.

The program is structured to serve a complementary student population, including transfer students, working professionals, and learners seeking a technically rigorous program that combines creative media with applied computing and software development. Its focus on **web systems, user experience (UX/UI), data visualization, artificial intelligence, and immersive technologies (AR/VR)** aligns with evolving workforce needs in digital and interactive industries.

The proposed program is not expected to negatively impact enrollment at HBIs. Instead, it expands the state's capacity to produce graduates with **interdisciplinary skill sets that combine computing and media**, strengthening Maryland's workforce in both technical and creative sectors.

2. Opportunities for Collaboration and Mutual Benefit

The Bachelor of Science in Interactive Media Technology and Design provides several opportunities for collaboration with HBIs and supports the continued strength of their high-demand programs:

• **Transfer and Articulation Pathways**
The program can serve as a transfer destination for students completing associate degrees or lower-division coursework in:

- Multimedia and digital media
- Information technology
- Computer science or web development

at HBIs or community colleges. This pathway enables students to pursue a bachelor's degree that emphasizes **interactive systems, applied computing, and user-centered design**.

• **Collaborative Projects and Capstone Experiences**
Opportunities may be developed for joint capstone projects or collaborative initiatives in areas such as:

- Interactive web and mobile applications
- Game development and simulation
- Data visualization and analytics

- Immersive media (AR/VR) environments
- Human-centered computing and UX design

These collaborations would allow students from multiple institutions to work together on **interdisciplinary, real-world projects**.

• **Workforce Development Initiatives**
The program supports statewide workforce development efforts by preparing graduates with skills in:

- Software and web development
- Interactive media systems
- User experience design
- Artificial intelligence applications

By complementing HBI programs that emphasize **media production and communication**, the proposed program broadens the talent pipeline and supports continued participation of underrepresented groups in high-demand technology fields.

• Industry and Partnership Engagement
Collaborative engagement with industry partners may include:

- Internship and co-op opportunities
- Joint workforce training initiatives
- Participation in industry-sponsored projects
- Shared engagement with employers in media, technology, and digital innovation sectors

These partnerships benefit students across institutions, including HBIs, by expanding access to **experiential learning and career pathways**.

F. Relevance to the Identity of Historically Black Institutions (HBIs)

1. Impact on the Uniqueness, Institutional Identity, and Mission of HBIs

The proposed Bachelor of Science in Interactive Media Technology and Design is not expected to negatively impact the uniqueness, institutional identity, or mission of Maryland's Historically Black Institutions (HBIs). Rather, it complements the state's collective efforts to expand access to high-quality, workforce-aligned education in computing, digital media, and emerging interactive technologies.

Maryland's HBIs, including **Morgan State University, Bowie State University, and the University of Maryland Eastern Shore**, maintain longstanding missions centered on educational equity, leadership development, and community advancement. These institutions play a critical role in preparing students—particularly African American students—for professional success in fields such as media, communication, information systems, and computing through strong academic programs and research opportunities.

The proposed program differs from HBI offerings in both focus and instructional approach. While many HBI programs emphasize **media production, communication, or traditional computing disciplines**, the proposed program integrates **software development, artificial intelligence, web systems, and interactive media design** within a unified, application-oriented framework. The curriculum is designed to prepare graduates for technical roles in areas such as:

- Interactive and web application development
- User experience (UX/UI) design
- Data visualization and digital content systems
- Game development and immersive technologies (AR/VR)

The program is also structured to serve a complementary student population, including community college transfer students, working professionals, and adult learners who seek a technology-focused, hands-on, and interdisciplinary educational pathway. Its emphasis on applied computing, project-based learning, and industry-aligned skills provides an alternative learning environment that does not replicate the mission or structure of HBI programs.

The proposed program does not duplicate the academic strengths of HBIs but instead fills a complementary role within Maryland's higher education ecosystem. It expands the range of educational pathways available to students while preserving the distinct identities and missions of HBI institutions.

Opportunities for Collaboration

• **Articulation and Transfer Agreements**
Establish pathways for students from HBIs who wish to pursue a bachelor's degree focused on **interactive media technologies, applied computing, and user-centered design**, particularly those transitioning from programs in digital media, information technology, or computer science.

• **Joint Capstone and Applied Projects**
Collaborate on multidisciplinary projects in areas such as:

- Interactive web and mobile systems
- Game design and development
- Data visualization and analytics
- Immersive environments (AR/VR)
- Human-centered computing and UX design

• **Workforce Development Partnerships**
Support statewide initiatives that increase the number of graduates prepared for careers in:

- Software and web development
- Interactive media and digital systems
- UX/UI and human-centered design
- Emerging technologies such as AI and immersive media

while maintaining strong participation of underrepresented populations.

• **Industry Engagement**
Partner with employers to provide:

- Internships and cooperative education experiences
- Applied training in digital and interactive technologies
- Industry-sponsored projects and mentorship opportunities

These initiatives will benefit students across institutions, including HBIs, by expanding access to experiential learning and career pathways.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes

1. Program Development and Faculty Oversight

The Bachelor of Science in Interactive Media Technology and Design was developed through collaboration among faculty within Capitol Technology University's computing and engineering disciplines, the Office of Academic Affairs, and members of the university's Industry Advisory Board. The program was established in response to increasing workforce demand for graduates with integrated skills in **software development, interactive media, user experience design, and emerging digital technologies**.

The curriculum builds upon the university's existing strengths in **computer science, artificial intelligence, software engineering, and applied technology**, while incorporating specialized coursework in **interactive media, UX/UI design, multimedia systems, and immersive technologies**. This interdisciplinary structure ensures that graduates are prepared to design, develop, and deploy modern interactive systems.

Core knowledge areas include:

- Programming (C, C++, Java)
- Data structures and software engineering
- Web and database systems
- Artificial intelligence fundamentals
- Data visualization and analytics
- Graphics and game programming
- User experience (UX/UI) design
- Multimedia and interactive media development
- AR/VR and immersive technologies

The curriculum emphasizes **hands-on learning, project-based instruction, and applied problem-solving** using modern development tools, programming environments, and media platforms. Students gain practical experience through design projects, interactive applications, and real-world system development aligned with industry practices.

The program will be overseen by full-time faculty with expertise in **computer science, artificial intelligence, software engineering, and digital media technologies**. Faculty bring a combination of academic credentials and industry experience in areas such as web development, AI, UX/UI design, and multimedia systems. Adjunct faculty with specialized expertise in **interactive media, game development, and immersive technologies** will support program delivery as needed.

2. Educational Objectives and Learning Outcomes

The program will be delivered in a hybrid-flexible format, combining face-to-face instruction with online and hybrid components, with selected courses offered in **hybrid or online modalities** to support transfer students, working professionals, and nontraditional learners. Project-based and applied components are integral to the curriculum and reinforce practical skills in system design and implementation.

Educational Objectives

Graduates of the Interactive Media Technology and Design program will:

1. Be prepared for entry-level positions in **interactive media development, web and mobile application development, UX/UI design, and digital content systems**.
2. Apply principles of **software development, data systems, and interactive design** to create and implement user-centered digital solutions.
3. Demonstrate professional ethics, teamwork, and effective communication in computing and digital media environments.
4. Engage in lifelong learning, professional development, and continuous skill enhancement in response to evolving technologies.

Student Learning Outcomes

Upon graduation, students will be able to:

1. Apply knowledge of computing, programming, and modern development tools to solve broadly defined technical problems.
2. Design and develop interactive systems, applications, or digital media solutions that meet user and stakeholder needs.
3. Analyze, process, and visualize data to support decision-making and user interaction.
4. Communicate effectively in written, oral, and visual forms within technical and professional contexts.
5. Function effectively as a member or leader on multidisciplinary teams.
6. Integrate software development, user experience design, and multimedia technologies in the creation of interactive systems.
7. Recognize professional, ethical, and societal responsibilities in computing and digital media practice.

These outcomes are aligned with **industry expectations in computing and interactive media fields** and reflect the applied, interdisciplinary nature of the program.

3. Assessment and Documentation of Student Learning Outcomes

a) Assessment of Student Achievement

Student learning outcomes will be assessed using a combination of direct and indirect measures, including:

- Examinations and quizzes
- Programming assignments and projects
- Design and development projects
- Technical reports and presentations
- Portfolio-based assessments

The two-semester senior design sequence (**SDE 457 and SDE 458**) serves as a comprehensive assessment of student achievement. In this sequence, students work in teams to design, develop, and implement an **interactive system, application, or digital media solution** that integrates knowledge from across the curriculum. Projects require application of programming, design, data, and user experience principles.

Faculty will collect and analyze assessment data each semester. Results will be reviewed during program assessment meetings to identify trends, evaluate student performance, and support continuous

improvement. Feedback from the Industry Advisory Board will also be incorporated to ensure alignment with workforce expectations.

b) Documentation of Student Achievement

Capitol Technology University maintains a centralized system for documenting assessment data. Course portfolios include representative samples of student work, grading rubrics, and assessment results mapped to program outcomes.

Annual program assessment reports are generated to:

- Track student performance
- Evaluate outcome achievement
- Document continuous improvement efforts

These reports support institutional review processes and future program evaluation.

4. Curriculum and Program Requirements

The Bachelor of Science in Interactive Media Technology and Design is a **120-credit undergraduate program** designed to prepare students for careers in computing, interactive media, and digital systems development.

Students gain comprehensive experience through coursework in:

- Programming and software development
- Web and database systems
- Artificial intelligence and data visualization
- Graphics, game development, and immersive media
- UX/UI and user-centered design
- Multimedia production and interactive storytelling

The program culminates in a **two-semester senior design project**, in which students design and implement a complete interactive system or digital application.

B.S. in Interactive Media Technology and Design (120 Credits) – Curriculum Summary Table

Category	Description	Credits
General Education	Foundational coursework in communication, humanities, ethics, business, and social sciences to support critical thinking, writing, and professional skills.	21
Mathematics & Science	Core quantitative and scientific principles including algebra, trigonometry, statistics, and physics to support technical problem-solving.	13
Computing & Technology Core	Programming, software development, databases, web technologies, artificial intelligence, and human-computer interaction forming the technical foundation of the program.	36
Interactive Media & Design Core	Specialized coursework in digital media, UX/UI design, multimedia production, game development, AR/VR, and interactive storytelling with project-based learning.	32

Experiential Learning	Supervised internship providing practical, real-world industry experience in interactive media and computing.	3
Capstone	Two-course senior design sequence focused on integrating knowledge into a comprehensive project.	6
Electives	Flexible coursework allowing students to explore additional areas of interest or deepen specialization.	9
Total		**120**

Curriculum Table
B.S. in Interactive Media Technology and Design (120 Credits)

General Education (21 Credits)

Course Number & Title	Credits	Prerequisites
EN 101 – English Communications I	3	None
EN 102 – English Communications II	3	EN 101
HU 331 – Arts and Ideas	3	EN 102
SS 351 – Ethics	3	EN 102
BUS 174 – Introduction to Business	3	None
Social Science Elective	3	None
Humanities Elective	3	None

Mathematics & Science (13 Credits)

Course Number & Title	Credits	Prerequisites
MA 112 – Intermediate Algebra	3	Placement or MA 005
MA 114 – Algebra & Trigonometry	4	MA 112 or placement
MA 128 – Introduction to Statistics	3	MA 112 or equivalent
PH 201 – General Physics I	3	MA 114

Computing & Technology Core (36 Credits)

Course Number & Title	Credits	Prerequisites
CS 120 – Introduction to Python	3	None
CS 150 – Programming in C	3	CS 120 or placement
CS 200 – Programming in C++	3	CS 130 or CS 150
CS 130 – Programming in Java	3	CS 120
CS 230 – Data Structures	3	CS 130
CS 220 – Database Management	3	CS 120 or CS 130
CS 356 – Dynamic Web Page Development	3	CS 230 and CS 200
CS 305 – Android Application Development	3	CS 230
SE 301 – Software Engineering	3	CS 220
SE 321 – Human Computer Interaction	3	CS 130 or CS 150

DS 350 – Data Visualization	3	CS 220
AIT 201 – Introduction to Artificial Intelligence	3	MA 128

Interactive Media & Design Core (32 Credits)

Course Number & Title	Credits	Prerequisites
IMD 110 – Digital Graphics & Visual Design	3	None
IMD 120 – Multimedia Production	3	None
CT 201 – Multimedia Applications	3	CT 102 or equivalent
IMD 210 – UX/UI Design	3	IMD 110
IMD 220 – Web Design & Front-End UX	3	CS 356
IMD 320 – Interactive Storytelling	3	CT 201
CS 431 – Graphics & Game Programming	3	CS 230 and PH 201 or PH 261
IMD 340 – AR/VR & Immersive Media	3	CS 431
IMD 350 – Interactive Media Project I	4	IMD 210 and Junior Standing
IMD 360 – Interactive Media Project II	4	IMD 350

Experiential Learning (3 Credits)

Course Number & Title	Credits	Prerequisites
IMD 390 – Internship	3	Junior Standing (60+ credits completed) and Program Chair Approval

Capstone (6 Credits)

Course Number & Title	Credits	Prerequisites
SDE 457 – Senior Design I	3	Senior Standing
SDE 458 – Senior Design II	3	SDE 457

Electives (9 Credits)

Course Number & Title	Credits	Prerequisites
General Elective	9	Advisor Approval

Course Descriptions

General Education (21 Credits)

EN-101 – English Communications I (3 credits): This introductory college-level course focuses on effective oral and written communication skills and the development of analytical abilities through various reading and writing assignments. Students must demonstrate competence in writing mechanics,

including grammar, sentence structure, logical content development, and research documentation through 4 essays/research papers. Rhetorical modes may include description, comparison/contrast, narrative, and process analysis. Students are expected to develop effective oral communication skills through speeches. Group projects will develop effective team skills such as decision-making, time management, and cooperation. Prerequisite(s): Acceptance based on placement test scores.

EN-102 – English Communications II (3 credits): This sequel to EN-101 involves more sophisticated reading, writing, speaking, and research assignments. Students must demonstrate competence in writing mechanics, as well as advanced research skills, the ability to handle complex information, and effective team skills. Students write research papers: an information paper, a cause-and-effect paper, an argument paper, and a final research paper. Course includes group work. Presentations are required. Prerequisite(s): EN 101

HU 331 - Arts and Ideas (3 credits): This course enables students to study and appreciate various forms of art, including painting, sculpture, architecture, music, drama, film, and literature through in- class and on-site experiences. The arts are also surveyed from an historical perspective, focusing primarily on eras in Western civilization. This enables students to sense the parallel development of the arts, of philosophy, and of sociopolitical systems and to recognize various ways of viewing reality. Prerequisite(s): EN 102

SS 351 – Ethics (3 credits): This course is designed to help students improve their ability to make ethical decisions. This is done by providing a framework that enables the student to identify, analyze, and resolve ethical issues that arise when making decisions. Case analysis is a primary tool of this course. Prerequisite(s): EN 102

BUS 174 - Introduction to Business and Management (3 credits): This course presents a survey of the general business and management environment. Topics include an introduction to the various forms of business, organizational structure, and their legal implications. Modern management and supervision concepts, history and development of theory and practice, the roles of managers, and the relationship between manager and employee are examined. This is a seminar course with emphasis on class discussion and collaborative learning

Social Science Elective (3 credits): Introduces students to the systematic study of human behavior and social systems. Topics may include psychology, sociology, economics, political science, or related disciplines. Emphasis is placed on understanding social structures, cultural diversity, ethical considerations, and the impact of societal factors on individuals and communities.

Humanities Elective (3 credits): Explores human culture, expression, and values through disciplines such as literature, philosophy, history, or the arts. Students develop critical thinking, communication, and analytical skills while examining historical and contemporary perspectives on human experience, creativity, and ethical reasoning.

Mathematics & Science (13 Credits)

MA 112 – Intermediate Algebra (3 credits): Designed for students needing mathematical skills and concepts for MA-114 and MA-261. In this course students are introduced to equations and inequalities and learn the language of algebra and related functions, including polynomial, rational, exponential and

logarithmic functions. Other topics include solving equations, inequalities and systems of linear equations; performing operations with real numbers, complex numbers and functions; constructing and analyzing graphs of functions; and using mathematical modeling to solve application problems. Prerequisite(s): MA 005 or placement test score.

MA 114 - Algebra and Trigonometry (4 credits): Designed for students needing mathematical skills and concepts for MA-261. Topics in this course are as follows. Algebra: basic operations on real and complex numbers, fractions, exponents and radicals. Determinates: Solution of linear, fractional, quadratic and system equations. Trigonometry: definition and identities, angular measurements, solving triangles, vectors, graphs and logarithms. Prerequisite(s): MA 112 or placement test score.

MA 128 – Introduction to Statistics (3 credits): This course addresses probability: definitions, theorems, permutations and combinations; binomial, hypergeometric, Poisson and normal distributions; sampling distribution and central limit theorem; and estimation and hypothesis testing. Prerequisite(s): MA 110, MA 111 or MA 112.

PH 201 - General Physics I (3 credits): This is a non-calculus-based physics course intended for credit in engineering technology courses. PH-261 is to be used for electrical, computer, and software engineering courses. PH-201 addresses mechanics, focusing on units, conversion factors, vector diagrams, translational equilibrium, friction, torque and rotational equilibrium, uniformly accelerated motion, projectiles, Newton's Law, work energy and power, kinetic and potential energy, conservation of energy, and impulse and momentum. It also addresses heat, focusing on temperature scales, thermal properties of matter, heat and temperature change, heat and change of phase, physics of heat transfer, and applications. Students completing this course may not enroll in PH-261 for additional credit. **Prerequisite(s):** MA 114.

Computing & Technology Core (36 Credits)

CS 120 - Introduction to Programming Using Python (3 credits): The course will cover basic concepts and elements of computer programming using Python. Topics include variables, constants, operators, expressions, statements, branching, loops, and functions. Additionally, Python specific data structures, built-in functions, library modules and working with external files will be applied in developing working code.

CS 150 - Programming in C (3 credits): This introductory course in programming will enable students to understand how computers translate basic human instructions into machine executable applications. The language of choice for this course is C. The C syntax that will be covered includes functions; variables and memory allocations including pointer notation; conditional statements and looping. Students will also learn binary to hexadecimal and decimal conversions along with basic computer architecture. Memory management, data input output and file manipulations will be among some other topics discussed and applied during this course. Formerly titled Introduction to Programming Using C. Prerequisite(s): MA 111 or MA 112 and CS 120 or placement test.

CS 200 - Programming in C++ (3 credits): Students learn how to program in C++ using an object-oriented approach. Design of classes and objects, inheritance and polymorphism, use of pointers and data structured based projects are also covered in this course. **Prerequisite(s):** CS 130 or CS 150

CS 130 – Introduction to Programming Using Java (3 credits): Introduces students to the discipline, methodologies, and techniques of software development. The emphasis is on developing essential programming skills, an understanding of object-oriented design and good software engineering practices using the Java programming language. Program constructs include selection, looping, arrays, graphical output of data, the use of the standard Java class library, and construction of simple user-defined classes. Programming projects are assigned as part of the homework requirements. Prerequisite(s): MA 110 or MA 112 or MA 114. Corequisite(s): CS 120 for BS in Computer Science majors only.

CS 230 - Data Structures (3 credits): Advance pointers and dynamic memory usage. Concepts of object-oriented design and programming. Includes classes, friend functions, templates, operator overloading, polymorphism, inheritance, exception handling, containers, iterators and the standard template library. Applications involve the use of simple data structures such as stacks, queues, linked lists and binary trees. Recursion, searching and sorting algorithms. The above concepts are implemented through a series of hands-on programming projects, all of which are completed as part of the homework requirements. **Prerequisite(s):** CS 225 or CS 200. **Corequisite(s):** MA

CS 220 – Database Management (3 credits): An overview of database systems, with an emphasis on relational databases. Terminology, basic analysis and design using Entity-Relationship diagrams and relational schemas. Database implementation, queries and updates in a modern relational database management system. An overview of database administration, transactions and concurrency. Data warehouses. Projects, which are assigned as homework, are implemented in Oracle. Prerequisite(s): CS 120 or CS 130 or CS 150. You may take this course and CS-130 concurrently.

CS 356 – Dynamic Web Page Development (3 credits): This course teaches the student how to generate dynamic web pages using data from a database. The course begins with an overview of the C# programming language and object-orientation. Using ASP.NET, this course explores the processing of web forms and controls, state management, validation and error handling, SQL database access and secure web site coding. Programming projects, including a group project, are assigned as part of the homework requirements. Prerequisite(s): CS 220 and CS 225 or CS 230 and CS 200.

CS 305 – Android Application Development (3 credits): Writing applications for mobile devices using the Android operating system. Installing and using the Android SDK. Creating GUI layouts, menus and dialog boxes. Graphics and event handling. Interfacing with built-in GPS, accelerometer, audio and video. User and file input and output. Web interfaces and sockets. Writing native applications. Debugging native applications from a host. Preparing an application for publication. High-level programming will be performed using Java and XML. Native programming will be performed in C/C++. Programming in ARM-7 assembly language will be introduced. Some Unix/Linux experience is recommended. Prerequisite(s): CS 225 or CS 230.

SE 301 – Software Engineering (3 credits): Introduction to software design. Software performance, modularity, portability and reliability. Students apply engineering principles to create software solutions to specified problems. Software testing and CASE tools introduced. Emphasis on UML and object-oriented code. Offered during fall semester only. Offered during fall semester only. Prerequisite(s): CS 220.

SE 321 – Human Computer Interaction (3 credits): Students learn user-centered design of computer systems with the goal of high usability. Emphasis is on designing systems that are efficient, easy-to-use, enjoyable and effective. Explores the selection of interaction style, hardware, and the use of color, font, text and images. Explores design implications due to user characteristics such as age, dexterity, experience and disabilities. Students learn requirements gathering, prototype building and user testing. A

group project is assigned. Offered during Spring semester only. Offered during Spring semester only. Prerequisite(s): CS 130 or CS 150.

DS 350 – Data Visualization (3 credits): This course will introduce best practices and industry standards for data visualization. The students will learn topics such as effective graphical representation of big data, unbiased data representation, exploratory data analysis, and interactive and sharable visualization. Prerequisite(s): CS 220.

AIT 201 – Introduction to Artificial Intelligence (3 credits): Introduction to Artificial Intelligence explores the foundational principles and applications of AI. Students delve into key concepts such as machine learning, data representation, and problem-solving algorithms. The course introduces ethical considerations in AI development and its societal impact. Exploring various types of AI, from rule-based systems to machine learning approaches, students gain insights into the breadth of AI applications. Hands-on projects provide practical experience in implementing AI techniques. This course equips students with a broad understanding of AI's capabilities and challenges, laying the groundwork for advanced studies and real-world applications. Prerequisite(s): MA 128.

Interactive Media & Design Core (32 Credits)

IMD 110 – Digital Graphics & Visual Design (3 credits): This course introduces students to the principles and techniques of digital graphics and visual design. Topics include design fundamentals such as color theory, typography, layout, composition, and visual hierarchy. Students learn to create and manipulate digital images and graphics using industry-standard tools. Emphasis is placed on developing aesthetic judgment, visual communication skills, and design for digital media applications. Projects are assigned as part of the coursework to reinforce design concepts and practical skills. Prerequisite(s): None.

IMD 120 – Multimedia Production (3 credits): This course introduces students to the principles and techniques of multimedia production, including the creation and integration of text, audio, images, and video. Students learn the fundamentals of digital media production, editing, and compression, as well as the use of industry-standard tools for content creation. Emphasis is placed on storytelling, visual communication, and the effective use of multimedia in interactive applications. Projects are assigned as part of the coursework to develop practical skills in multimedia production. Prerequisite(s): None.

CT 201 – Multimedia Applications (3 credits): Use online and resident window tools to create, edit and enhance text, audio, and video for multimedia applications, including multimedia Web pages and presentations. Study the philosophy, aesthetics and theory behind the layout, construction and display of multimedia material. Flash projects that include drawing, painting tools, color animation, buttons and ActionScript are completed as part of the homework requirements. Prerequisite(s): CT 102 or equivalent.

IMD 210 – UX/UI Design (3 credits): This course introduces students to the principles and practices of user experience (UX) and user interface (UI) design for interactive systems. Topics include user-centered design, usability, information architecture, wireframing, prototyping, and interface design. Students learn to design intuitive and effective user interfaces while considering user needs, accessibility, and interaction patterns. Emphasis is placed on designing and evaluating user experiences through iterative design and testing. Projects are assigned as part of the coursework to develop practical UX/UI design skills. Prerequisite(s): IMD 110.

IMD 220 – Web Design & Front-End UX (3 credits): This course focuses on the design and development of user-centered web interfaces. Students learn principles of responsive web design,

usability, accessibility, and front-end development using modern web technologies. Topics include layout design, navigation structures, interactive elements, and performance considerations. Emphasis is placed on translating UX/UI design concepts into functional web interfaces. Projects are assigned as part of the coursework to develop practical skills in front-end design and implementation. Prerequisite(s): CS 356.

IMD 320 – Interactive Storytelling (3 credits): This course explores the principles and techniques of storytelling in interactive digital media. Topics include narrative structure, user engagement, branching storylines, and the integration of multimedia elements in interactive environments. Students learn how to design and develop compelling interactive experiences that combine story, design, and technology. Emphasis is placed on creating immersive and user-driven narratives for applications such as web media, games, and digital experiences. Projects are assigned as part of the coursework to develop practical storytelling and design skills. Prerequisite(s): CT 201.

CS 431 – Graphics & Game Programming (3 credits): Students learn how to develop and build a game using an industry-standard game engine such as Unity. Students learn how to use 2D and 3D graphics, sound files, and user driven programming to build a 3D game. Students learn how to design and build a scene, manage game characters, manage game levels, manage and store game data. Prerequisite(s): CS 230 and PH 201 or PH 261.

IMD 340 – AR/VR & Immersive Media (3 credits): This course introduces students to the principles and technologies of augmented reality (AR), virtual reality (VR), and immersive media. Topics include 3D environments, interaction design in immersive systems, spatial interfaces, and user experience in AR/VR applications. Students learn to design and develop immersive experiences using industry-standard tools and platforms. Emphasis is placed on creating interactive and engaging environments for applications such as gaming, training, and simulation. Projects are assigned as part of the coursework to develop practical skills in immersive media development. Prerequisite(s): CS 431.

IMD 350 – Interactive Media Project I (4 credits): This course provides students with the opportunity to apply concepts and skills from previous coursework to the design and development of interactive media projects. Students work individually or in teams to plan, design, and implement a project that integrates elements of programming, user experience design, and multimedia. Emphasis is placed on project planning, iterative development, and documentation. Projects are assigned as part of the coursework to develop practical and portfolio-ready outcomes. Prerequisite(s): IMD 210 and Junior Standing.

IMD 360 – Interactive Media Project II (4 credits): This course is a continuation of Interactive Media Project I, focusing on the completion and refinement of a comprehensive interactive media project. Students enhance, test, and finalize their projects with emphasis on usability, performance, and presentation. Topics include project integration, quality assurance, and deployment of interactive systems. Students present their completed projects as part of the coursework, demonstrating technical, design, and communication skills. Prerequisite(s): IMD 350.

Experiential Learning (3 Credits)

IMD 390 – Internship (3 credits): This course provides students with supervised practical experience in an approved organization related to interactive media, technology, or design. Students apply knowledge and skills gained in the program to real-world projects in a professional environment. Emphasis is placed

on professional development, workplace communication, and the application of technical and design competencies. Students are required to complete assigned tasks, maintain documentation of their experience, and submit a final report. Prerequisite(s): Junior Standing (60+ credits completed) and Program Chair Approval.

Capstone (6 Credits)

SDE 457 - Senior Design I (3 credits): Students/teams select a project, develop an understanding of the project scope that includes research and documentation of related work, prepare a feasibility study, develop project requirements (constraints) and engineering, software, and/or security specifications, propose solutions and multiple designs, analyze proposed designs, select a final proposed design, and prepare and present a preliminary design review (PDR). Students are expected to apply proper systems engineering and project management to their work. Additional components may be required in some projects. Students/teams submit a final report at the end of the semester. **Prerequisite(s):** Senior standing.

SDE 458 - Senior Design II (3 credits): Students/teams build and test their selected designs (completed in SDE 457). Each student team delivers a tested prototype and defends its project in front of a panel of experts. Students/teams submit a final report that includes description of the design, realization, and test processes as well as test results, discussion, and conclusion. Failure to deliver a completed design and a working prototype that meets engineering, software, and/or security specifications by the end of the semester may result in failing the course. **Prerequisite(s):** SDE 457

Electives (9 Credits)

General Electives (9 credits): Students select elective courses to complement their program of study and explore additional areas of interest. Electives may be chosen from approved courses in computing, media, business, or related disciplines. The selection of electives allows students to broaden their knowledge, develop specialized skills, and tailor the program to their academic and career goals. Prerequisite(s): Advisor Approval.

5. General Education Requirements

The Bachelor of Science in Interactive Media Technology and Design satisfies the general education requirements established by the Maryland Higher Education Commission (MHEC) under COMAR 13B.02.03. The general education component is intentionally integrated into the curriculum to ensure that graduates develop strong communication skills, ethical reasoning, critical thinking, and an understanding of the broader societal context in which computing and interactive media technologies are developed and applied.

Courses in written and oral communication (**EN 101 and EN 102**) provide students with the ability to effectively convey technical and creative information through reports, presentations, and professional communication. Humanities and social science courses, including **Arts and Ideas (HU 331)** and **Ethics**

(SS 351), support the development of ethical decision-making, cultural awareness, and an understanding of the societal impact of digital technologies and media systems.

Business coursework, including **Introduction to Business (BUS 174)**, enhances students' ability to function effectively in organizational and project-based environments, particularly in areas such as digital product development, media production, and technology-driven enterprises.

The integration of general education throughout the program ensures that graduates are not only technically proficient but also well-prepared to communicate effectively, think critically, and contribute responsibly to society in the context of rapidly evolving digital technologies.

6. Specialized Accreditation and Certification Requirements

The proposed Bachelor of Science in Interactive Media Technology and Design is designed in alignment with recognized standards in computing and applied technology education. While the program is not currently seeking specialized accreditation, its curriculum incorporates best practices consistent with computing disciplines and industry expectations.

The program structure includes:

- A strong foundation in programming, software development, and data systems
- Core coursework in web technologies, databases, and application development
- Integration of artificial intelligence, data visualization, and interactive media technologies
- Emphasis on user experience (UX/UI), human-centered design, and multimedia systems
- Project-based and applied learning experiences using modern tools and platforms
- A two-semester capstone design sequence demonstrating student competency in system design and implementation

The program will continuously evaluate opportunities for alignment with relevant accreditation frameworks (such as ABET Computing Accreditation Commission, if appropriate) and industry-recognized certifications in areas such as web development, UX design, and software engineering.

Continuous assessment and improvement processes are embedded within the program to ensure long-term quality, relevance, and alignment with workforce needs.

7. Contractual Agreements

The proposed program does not rely on or include any contractual agreements with external institutions or organizations for the delivery of instruction or student services.

All courses, laboratories, and academic support services will be provided directly by Capitol Technology University. The University maintains full responsibility for curriculum design, instructional delivery, faculty oversight, and assessment of student learning outcomes.

Existing institutional infrastructure, including computing laboratories, software development environments, and multimedia resources, is sufficient to support the program without the need for external instructional partnerships.

8. Student Information and Support

Capitol Technology University provides a comprehensive set of student support services designed to promote academic success, retention, and career readiness. Students enrolled in the Interactive Media Technology and Design program will have access to these services throughout their academic experience.

Each student is assigned a faculty advisor who provides guidance on course selection, academic progression, and career planning. Advisors work closely with students to ensure timely degree completion and alignment with career goals in computing and interactive media fields.

Additional academic support services include tutoring, supplemental instruction, and access to faculty office hours. The Puente Library provides research assistance, digital resources, and access to databases relevant to computing, digital media, and emerging technologies.

Career services support students through:

- Resume development
- Portfolio creation (critical for this program)
- Interview preparation
- Internship placement
- Job search assistance

The University maintains relationships with industry partners, providing students with opportunities for internships and experiential learning in areas such as web development, UX/UI design, digital media, and software systems.

The University also utilizes early alert systems and academic monitoring tools to identify students who may require additional support, enabling timely intervention and improved retention outcomes.

9. Advertising, Recruitment, and Admissions

All advertising, recruitment, and admissions materials related to the Interactive Media Technology and Design program will be accurate, transparent, and aligned with institutional policies and MHEC requirements. Program materials will clearly describe curriculum structure, learning outcomes, career pathways, and program outcomes.

Recruitment efforts will target a diverse population of students, including:

- Recent high school graduates
- Community college transfer students
- Military personnel
- Working professionals

Outreach initiatives include partnerships with community colleges, participation in STEM and digital media events, and engagement with industry and workforce development organizations.

Admissions requirements will be consistent with institutional standards and appropriate for a technically oriented undergraduate program. The University will ensure that prospective students are adequately prepared through clear communication of prerequisite knowledge and academic expectations, particularly in mathematics and introductory computing.

All program materials will be reviewed regularly by Academic Affairs to ensure accuracy, consistency, and alignment with program objectives and institutional standards.

H. Adequacy of Articulation

1. Articulation with Partner Institutions

The Bachelor of Science in Interactive Media Technology and Design at Capitol Technology University is designed to support transfer and articulation with regional and statewide institutions, particularly community colleges offering programs in computer science, information technology, web development, digital media, and multimedia design. The curriculum is structured to facilitate the transfer of lower-division credits and provide a clear and efficient pathway to degree completion.

Capitol Technology University maintains articulation agreements with institutions such as Cecil College, Howard Community College, Anne Arundel Community College, and Montgomery College. Additional partnerships include institutions outside Maryland, such as the Community College of Rhode Island (CCRI) and Columbia Southern University. These agreements support transfer pathways for students completing associate degrees or certificates in areas such as web development, multimedia technology, computer programming, information technology, and digital media production.

The program curriculum is intentionally aligned with community college offerings in mathematics, computing, and foundational technical coursework. Lower-division courses in algebra, statistics, programming, and introductory computing are structured to ensure compatibility with equivalent courses at partner institutions. This alignment supports efficient credit transfer, minimizes duplication of coursework, and promotes timely degree completion.

The proposed program provides a natural continuation pathway for students completing associate-level programs in:

- Computer science and programming and information technology
- Web development and web design
- Multimedia and digital media and game design and simulation

These associate-level programs typically focus on foundational technical and development skills such as programming, web design, and media production. The bachelor's degree builds upon this foundation by advancing student knowledge in:

- Software engineering, data structures and web and database systems
- Artificial intelligence and data visualization
- User experience (UX/UI) design
- Interactive media and immersive technologies (AR/VR)

The university also supports articulation initiatives with high schools through **Project Lead The Way (PLTW)** and participates in the **Prince George's County Public Schools (PGCPS) PLTW Engineering Program Advisory Committee**. These efforts promote early exposure to computing, digital media, and STEM disciplines and create pathways for students to transition into technology-focused degree programs.

Capitol Technology University will continue to expand articulation and transfer partnerships with Maryland community colleges and technical institutions offering programs in **computing, digital media, and interactive technologies**. Formal articulation agreements specific to the Interactive Media Technology and Design program will be developed and submitted as supporting documentation following MHEC approval.

I. Adequacy of Faculty Resources

1. Faculty Qualifications and Teaching Assignments

The Bachelor of Science in Interactive Media Technology and Design will be supported by a highly qualified and experienced faculty team consisting of full-time faculty and adjunct instructors with expertise in **computer science, software engineering, artificial intelligence, data science, interactive media, and user experience design**. This multidisciplinary faculty composition supports the interdisciplinary nature of the program and ensures that students receive both rigorous academic instruction and practical, industry-relevant training.

Faculty members teaching in the program hold terminal degrees and advanced credentials in fields such as **computer science, cybersecurity, mechanical engineering, analytical chemistry, and project management**, as well as master's-level qualifications in information technology and education. Several faculty members bring significant industry experience in areas such as **software development, artificial intelligence, data science, cybersecurity, web technologies, and digital systems design**. This combination of academic and professional expertise supports the program's emphasis on **hands-on learning, project-based instruction, and workforce readiness**.

The program is administered within Capitol Technology University's academic structure under the leadership of the Dean of Academic Affairs and the appropriate department chair. Faculty are actively engaged in curriculum development, student advising, and continuous program improvement, ensuring alignment with industry needs and emerging technologies in computing and interactive media.

The instructional team includes both full-time faculty, who provide program continuity and oversight, and adjunct faculty with specialized expertise in areas such as **UX/UI design, multimedia systems, game development, and immersive technologies (AR/VR)**.

The following table summarizes faculty teaching assignments for the program:

Faculty Teaching Assignments

Faculty Name	Appointment Type	Courses Taught
Dr. Andrew Mehri	Full-Time	CS 230, CS 220, CS 356, CS 305, SE 301
Dr. Greg Behrmann	Full-Time	PH 201
Dr. Jeff Chi	Full-Time	BUS 174
Dr. Joseph Harvey	Full-Time	CS 200, CS 130, CT 102, IMD 390
Dr. Kellep Charles	Full-Time	CS 120, CS 150, SE 321, AIT 201
Dr. Nisma Omar	Full-Time	MA 112, MA 114, MA 128
Ms. Megan Miskovish	Part-Time	EN 101, EN 102, HU 331, SS 351
Dr. Tahani Baabdullah	Full-Time	DS 350, IMD 110, IMD 120, CT 201, IMD 210
Dr. Alexander Perry	Part-Time	IMD 220, IMD 320, CS 431, IMD 340, IMD 350
Dr. Bary W. Pollack	Part-Time	IMD 360, SDE 457, SDE 458

Faculty Resources

Dr. Andrew Mehri, Ph.D. in Computer Science. Dr. Mehri provides instruction in digital logic, computer systems, and technical computing, and supports integration between software and electronics curricula.

Dr. Gregory P. Behrmann, Ph.D. in Mechanical Engineering (The Catholic University of America). Dr. Behrmann teaches robotics, engineering mechanics, and systems engineering, with applied research interests in intelligent systems and human–robot collaboration.

Dr. Jeff Chi, Ph.D. in Project Management. Dr. Chi supports instruction in systems engineering and project management, with industry experience in project integration, planning, and sustainability.

Dr. Joseph Harvey, M.A. in Information Technology Management (Webster University), B.S. in Computer Science (Bowie State University). Mr. Harvey teaches artificial intelligence, software systems, and applied computing courses and is currently a Ph.D. candidate in Artificial Intelligence at Capitol Technology University.

Dr. Kellep Charles, Ph.D. in Cybersecurity (Capitol Technology University), M.S. in Telecommunication Management (University of Maryland University College), B.S. in Computer Science (North Carolina Agricultural and Technical State University). Dr. Charles teaches courses in artificial intelligence, cybersecurity, and autonomous systems

Dr. Nisma M. Omar, Ph.D. in Analytical Chemistry. Dr. Omar teaches foundational science courses and supports general education related to scientific literacy and technical communication.

Prof. Megan Miskovish (M.S., Education) supports general education by teaching writing and communication skills essential to technical professionals

Dr. Tahani Baabdullah, Ph.D. in Computer Science, **Full-Time Faculty** specializing in artificial intelligence and machine learning, with research and industry experience in deep learning, cybersecurity, and blockchain-integrated AI systems

Dr. Alexander Perry, D.Sc. in Cybersecurity (Capitol Technology University). Dr. Perry is an adjunct faculty member and data scientist conducting applied research in hybrid quantum-classical machine learning (HQML), with extensive industry experience in artificial intelligence, data science, cybersecurity, and quantum computing.

Dr. Bary W. Pollack, Ph.D. in Computer Science. Dr. Pollack has extensive academic and industry experience, having served as Computer Science Program Chair at Sierra Nevada University for over two decades and previously teaching at City College of San Francisco and San Francisco State University. He also spent more than 20 years in Silicon Valley as Vice President of Research and Development, leading the design and implementation of software products. Dr. Pollack's areas of expertise include computer graphics, programming languages, compilers, and the theory of computing, with a particular interest in entertainment technology.

2. Faculty Development and Pedagogical Training

Capitol Technology University is committed to supporting faculty through ongoing professional development focused on evidence-based instructional practices and the effective use of educational

technologies. The university's **Center for Innovation in Teaching and Learning (CITL)** serves as the primary resource for faculty training, instructional support, and continuous improvement.

CITL provides workshops, seminars, and individualized consultations designed to enhance teaching effectiveness, promote innovation, and support student success.

a) Pedagogy that Meets the Needs of Students

Faculty receive regular training in student-centered pedagogy that addresses the diverse needs of Capitol's student population, including traditional undergraduates, transfer students, adult learners, and underrepresented groups in STEM and computing fields.

Professional development activities emphasize:

- Inclusive and equitable teaching practices
- Active learning and student engagement strategies
- Formative assessment and feedback techniques
- Project-based and experiential learning approaches

Given the applied and interdisciplinary nature of the Interactive Media Technology and Design program, faculty are encouraged to incorporate:

- Project-based learning and portfolio development
- Real-world application development (web, mobile, and interactive systems)
- Team-based design projects
- User-centered design methodologies
- Integration of programming, design, and multimedia tools

These approaches support student retention, skill development, and workforce readiness in fields such as **software development, UX/UI design, and interactive media systems**.

b) Learning Management System

Capitol Technology University utilizes **Canvas** as its official learning management system (LMS). All faculty receive structured onboarding and training prior to teaching.

Ongoing professional development includes:

- Course design using modular structures
- Development and use of grading rubrics
- Use of analytics tools to monitor student progress
- Communication tools for student engagement
- Integration of programming assignments, design projects, discussions, and assessments

Faculty are trained to use Canvas effectively to support courses involving **coding, design workflows, multimedia content, and collaborative projects**, ensuring consistent delivery across face-to-face and hybrid formats.

c) Evidence-Based Practices for Distance Education

While the Interactive Media Technology and Design program is delivered primarily in a face-to-face format, select courses may be offered in hybrid or online formats to support working professionals and transfer students.

Faculty teaching in these formats receive training in:

- Best practices for online and hybrid instruction
- Student engagement in virtual and collaborative environments
- Use of multimedia, interactive tools, and development platforms
- Online assessment and academic integrity

These practices are particularly important for courses involving **software development, digital media production, and interactive design**, where students engage in hands-on, project-based learning.

All instructional modalities maintain the same level of academic quality, rigor, and student support, ensuring consistent achievement of program learning outcomes.

J. Adequacy of Library Resources

1. Library Resources and Support for the Program

Capitol Technology University's **Puente Library** provides comprehensive academic and research support for the Bachelor of Science in Interactive Media Technology and Design program. The library maintains extensive physical and digital collections designed to support students and faculty engaged in **computer science, software development, web technologies, digital media, user experience design, and interactive systems**.

Students have access to a wide range of scholarly and technical resources, including journals, eBooks, conference proceedings, and industry publications. Core databases supporting the program include **IEEE Xplore, ScienceDirect, SpringerLink, ProQuest, and JSTOR**. These resources provide full-text access to peer-reviewed research in areas such as:

- Software engineering and programming
- Artificial intelligence and data science
- Human-computer interaction (HCI) and UX/UI design
- Computer graphics and game development
- Web and mobile application development
- Multimedia systems and digital media

In addition to academic databases, the library provides access to professional and industry-related resources that support coursework and project development in interactive media and computing. These include materials related to:

- Web standards and development frameworks
- User experience and interface design methodologies
- Multimedia production tools and techniques
- Emerging technologies such as AR/VR and interactive systems

The library's collection also includes textbooks and reference materials aligned with courses in programming, data structures, web development, software engineering, and interactive media design.

The Puente Library is equipped with modern information systems, online research tools, and access to interlibrary loan networks, allowing students to obtain specialized materials beyond the university's immediate holdings. Students also benefit from online tutorials, citation management tools, and individualized research consultations, which support the development of information literacy and research skills essential for computing and digital media professionals.

Capitol Technology University maintains a strong commitment to continuous improvement and resource adequacy. The Dean of Academic Affairs, library staff, and program faculty collaborate regularly to review resource usage and identify new acquisitions aligned with evolving curriculum needs and industry trends.

Measures to ensure continued adequacy of library resources include:

- Conducting annual reviews of library holdings to ensure alignment with program learning outcomes and emerging technologies in computing and interactive media
- Acquiring updated textbooks, technical manuals, and digital resources as course content evolves
- Expanding access to specialized databases related to software development, UX/UI design, and digital media technologies as enrollment increases
- Providing equitable access to digital resources for both on-campus and remote learners

- Offering research instruction and embedded librarian support for senior design and capstone projects

Capitol Technology University affirms that the Puente Library's current resources and acquisition processes are fully adequate to support the implementation, growth, and long-term success of the Bachelor of Science in Interactive Media Technology and Design program.

K. Adequacy of Physical Facilities, Infrastructure, and Instructional Equipment

1. Physical Facilities, Laboratories, and Instructional Equipment

Capitol Technology University affirms that it possesses the physical facilities, infrastructure, and instructional equipment required to successfully launch and sustain the Bachelor of Science in Interactive Media Technology and Design program. The university's facilities include modern classrooms equipped with multimedia projection systems, high-speed wireless internet, and collaborative technologies that support lecture-based, studio-based, and project-based instruction.

Laboratories and computing facilities currently supporting computing, engineering, and technology programs will be utilized for the Interactive Media Technology and Design curriculum. These facilities are designed to support hands-on learning, software development, and digital media production. Key laboratory and instructional facilities include:

• Computer Programming and Software Development Laboratories

Supporting instruction in programming, software engineering, and application development using languages such as Python, C, C++, Java, and web technologies. These labs provide access to modern integrated development environments (IDEs), version control systems, and collaborative coding platforms.

• Web and Database Systems Laboratories

Equipped to support courses in dynamic web development, database systems, and server-side programming. Students develop and deploy interactive web applications using modern frameworks, database management systems, and cloud-based tools.

• Human-Computer Interaction (HCI) and UX/UI Design Studios

Supporting coursework in user experience design, interface development, and usability testing. Facilities include design software, prototyping tools, and collaborative environments for user-centered design and evaluation.

• Multimedia and Digital Production Laboratories

Providing resources for creating and editing digital media, including graphics, audio, video, and interactive content. These labs support courses in multimedia production and interactive storytelling using industry-standard software tools.

• Graphics, Game Development, and Immersive Media Laboratories

Supporting instruction in computer graphics, game programming, and AR/VR technologies. These facilities include development platforms such as Unity, graphics processing resources, and immersive technology tools for building interactive 2D and 3D environments.

• Data Visualization and Artificial Intelligence Computing Resources

Providing software and computing environments for data analysis, visualization, and introductory AI applications. Students use tools such as Python libraries, visualization platforms, and machine learning frameworks.

These laboratories are equipped with modern computing systems, specialized software, and industry-relevant technologies that enable students to design, develop, and evaluate interactive systems and digital media applications. The facilities support the program's emphasis on **hands-on learning, project-based instruction, and portfolio development**.

Faculty and staff offices are available and adequately furnished to support instruction, student advising, and collaboration. The university conducts periodic reviews of space utilization, laboratory capacity, and equipment to ensure alignment with enrollment growth and technological advancements.

2. Access to Technology for Distance and Hybrid Education

Capitol Technology University ensures that all students and faculty, including those participating in hybrid or online course components, have access to the digital infrastructure necessary for effective teaching and learning.

a) Institutional Electronic Communication System

All students and faculty are provided with official university email accounts through **Microsoft Office 365**. This system serves as the primary platform for academic communication, including course announcements, assignment notifications, and institutional correspondence, ensuring secure and reliable communication across the university community.

b) Learning Management System

The university utilizes **Canvas** as its official learning management system (LMS). Canvas supports both synchronous and asynchronous learning and provides tools for:

- Course content delivery
- Assignments and assessments
- Discussion forums and collaboration
- Grading and feedback
- Communication between students and faculty

Faculty receive training in effective course design and delivery using Canvas, while students are provided with orientation and ongoing technical support to ensure successful participation in hybrid or online learning environments.

L. Adequacy of Financial Resources with Documentation

1. Program Resources

The Bachelor of Science in Interactive Media Technology and Design program will be implemented using the existing physical facilities, infrastructure, and instructional equipment already available at Capitol Technology University. The university maintains modern classrooms, computing laboratories, media production resources, faculty offices, and technical infrastructure sufficient to support the launch and continued growth of the program.

TABLE 1: RESOURCES

Resource Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated Funds	$0	$0	$0	$0	$0
2. Tuition/Fee Revenue (c + g below)	$350,060	$707,940	$1,065,072	$1,449,072	$1,851,644
a. Number of F/T Students	8	16	24	32	40
b. Annual Tuition/Fee Rate	$27,808	$28,503	$29,216	$29,946	$30,695
c. Total F/T Revenue (a × b)	$222,464	$465,048	$701,184	$958,272	$1,227,800
d. Number of P/T Students	7	13	19	25	31
e. Credit Hour Rate	$1,519	$1,557	$1,596	$1,636	$1,677
f. Annual Credit Hour	12	12	12	12	12
g. Total P/T Revenue (d × e × f)	$127,596	$242,892	$363,888	$490,800	$623,844
3. Grants, Contracts, and Other External Sources	$0	$0	$0	$0	$0
4. Other Sources	$0	$0	$0	$0	$0
TOTAL (Add 1–4)	$350,060	$707,940	$1,065,072	$1,449,072	$1,851,644

Narrative Rationale for Table 1: Program Resources

1. Reallocated Funds:
No reallocated funds are anticipated. The program is designed to leverage Capitol Technology University's existing computing laboratories, software infrastructure, multimedia resources, and faculty expertise in computer science, software engineering, and interactive media. No existing programs will be reduced or eliminated.

2. Tuition and Fee Revenue:
Tuition projections are based on incremental enrollment growth, beginning with 8 full-time and 7 part-time students in Year 1 and increasing to 40 full-time and 31 part-time students by Year 5. A modest

annual tuition increase of approximately 2.5% is assumed, consistent with institutional trends. Revenue projections are conservative and sufficient to support instructional delivery and program operations.

3. Grants, Contracts, and External Sources:
While no external funding is included in the initial projections, the university will pursue grant opportunities related to **digital technologies, artificial intelligence, interactive media, and workforce development** to enhance program resources, student research opportunities, and industry engagement.

4. Other Sources:
No additional funding sources are projected at this time. However, future support may be obtained through industry partnerships, sponsorships, or philanthropic contributions aligned with **digital media, software development, and emerging technology initiatives**.

2. Program Expenditures

TABLE 2: EXPENDITURES

Expenditure Category	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Faculty (b + c below)	$113,468	$155,071	$238,421	$325,843	$417,486
a. # FTE	1.5	2	3	4	5
b. Total Salary	$94,557	$129,226	$198,684	$271,536	$347,905
c. Total Benefits (20%)	$18,911	$25,845	$39,737	$54,307	$69,581
2. Administrative Staff (b + c below)	$5,942	$6,091	$6,244	$6,400	$6,559
a. # FTE	0.08	0.08	0.08	0.08	0.08
b. Total Salary	$4,952	$5,076	$5,203	$5,333	$5,466
c. Total Benefits	$990	$1,015	$1,041	$1,067	$1,093
3. Support Staff (b + c below)	$59,885	$92,076	$125,837	$161,230	$198,313
a. # FTE	1	1.5	2	2.5	3
b. Total Salary	$49,905	$76,730	$104,864	$134,358	$165,261
c. Total Benefits (20%)	$9,980	$15,346	$20,973	$26,872	$33,052
4. Technical Support and Equipment	$840	$1,425	$2,320	$3,145	$4,140
5. Library	$0	$0	$0	$0	$0
6. New or Renovated Space	$0	$0	$0	$0	$0
7. Other Expenses	$5,850	$14,210	$25,370	$39,330	$56,090
TOTAL (Add 1–7)	$185,985	$268,873	$398,192	$535,948	$682,588

Narrative Rationale for Table 2: Program Expenditures

1. Faculty:
Includes salaries and benefits for full-time and adjunct faculty teaching courses in **computer science, software engineering, web development, artificial intelligence, data visualization, and interactive media design**. Faculty allocation increases from 1.5 FTE in Year 1 to 5 FTE by Year 5, consistent with enrollment growth and expanded course offerings.

2. Administrative Staff:
Administrative support (0.08 FTE) assists with scheduling, student advising coordination, and program administration. Costs reflect standard annual adjustments.

3. Support Staff:
Includes technical support personnel responsible for maintaining computing labs, supporting software environments, assisting with multimedia production resources, and supporting student projects. Staffing increases proportionally with program growth.

4. Technical Support and Equipment:
Covers maintenance of computing systems, software licenses, and development tools such as **programming environments, web development frameworks, multimedia software, and AR/VR platforms**. Costs increase with enrollment and lab utilization.

5. Library:
No additional expenditures are required. Existing library resources are sufficient to support the program.

6. New or Renovated Space:
No new construction or renovation is required. The program will utilize existing classrooms, computing laboratories, and media production facilities.

7. Other Expenses:
Includes marketing, program development, faculty training, and assessment activities. These costs increase as the program grows and expands.

M. Adequacy of Provisions for Evaluation of Program

1. Procedures for Evaluating Courses, Faculty, and Student Learning Outcomes

Capitol Technology University maintains established institutional processes to ensure the quality and continuous improvement of all academic programs, including the Bachelor of Science in Interactive Media Technology and Design.

Courses are evaluated at the end of each semester through standardized student course evaluations that assess instructional quality, course organization, student engagement, and achievement of learning outcomes. Results are reviewed by the course instructor, department chair, and Dean of Academic Affairs to identify strengths and implement improvements where needed.

Faculty performance is evaluated through multiple measures, including classroom observations, peer reviews, student feedback, and annual performance evaluations conducted by the department chair and the Dean. Faculty are encouraged to participate in ongoing professional development through the Center for Innovation in Teaching and Learning (CITL), which supports the adoption of evidence-based teaching practices and continuous instructional improvement.

Student Learning Outcomes (SLOs) are assessed at both the course and program levels. Faculty teaching courses aligned with program outcomes collect direct evidence of student learning through:

- Programming assignments and software development projects
- Web and mobile application development
- UX/UI design projects and usability evaluations
- Multimedia and interactive media projects
- Data visualization assignments
- Technical reports and presentations

Assessment data are compiled and reviewed regularly during departmental meetings to support continuous improvement of the curriculum, instructional methods, and project-based learning experiences. This process ensures alignment with industry expectations in **computing, software development, and interactive media fields** and supports the applied, interdisciplinary nature of the program.

2. Evaluation of Program Educational Effectiveness

The educational effectiveness of the Interactive Media Technology and Design program will be evaluated through a structured, data-driven assessment framework that integrates academic, operational, and financial performance indicators.

• Assessment of Student Learning Outcomes

The program maintains a systematic process for mapping, measuring, and evaluating student outcomes related to:

- Software and application development
- Interactive system design

- User experience (UX/UI) and human-centered design
- Data analysis and visualization
- Teamwork, communication, and professional ethics

Direct assessment data are collected from **capstone projects, design courses, and embedded assignments** each semester and reviewed annually to ensure alignment with program learning outcomes and industry expectations.

• Student Retention and Graduation Rates

The university monitors retention, progression, and graduation rates at the program level to evaluate student success. Early alert systems, academic advising, and faculty mentoring are used to support student persistence and reduce attrition, particularly in technically rigorous computing courses.

• Student and Faculty Satisfaction

Surveys are administered periodically to gather feedback on instructional quality, laboratory and computing resources, advising, and overall program experience. Additional input is obtained through student feedback mechanisms and the program's Industry Advisory Board.

• Cost-Effectiveness

The Business and Finance Division collaborates with Academic Affairs to evaluate the program's financial sustainability. Analyses include enrollment trends, faculty workload, and resource utilization to ensure the program remains both cost-effective and academically robust.

• Industry Advisory Input

Continuous input will be obtained from the program's Industry Advisory Board, which includes representatives from **software development, digital media, user experience design, data science, and emerging technology sectors**. The board provides guidance on curriculum relevance, student preparedness, and evolving workforce needs in interactive and digital technologies.

N. Consistency with the State's Minority Student Achievement Goals

1. Minority Student Access, Success, and Institutional Diversity Goals

The Bachelor of Science in Interactive Media Technology and Design aligns closely with Maryland's goals for promoting equitable access, diversity, and student success, as outlined in COMAR 13B.02.03.05 and the Maryland State Plan for Postsecondary Education (2022). Capitol Technology University maintains a strong institutional commitment to diversity, equity, and inclusion and has established initiatives to support underrepresented populations in computing, digital media, and technology-related fields.

The proposed program is designed to expand access to high-demand fields such as **software development, web and mobile applications, user experience (UX/UI) design, data visualization, and interactive media technologies** for historically underrepresented groups, including African American, Hispanic, female, first-generation, and veteran students. The interdisciplinary and applied nature of the program provides an accessible and engaging pathway for students who may not pursue traditional, theory-intensive computer science programs.

To promote equitable participation and student success, the program incorporates the following initiatives:

• Transfer-Friendly Pathways

Articulation agreements with Maryland community colleges—many of which serve diverse student populations—provide clear and efficient transfer pathways into the program, particularly for students completing associate degrees in **computer science, information technology, web development, and digital media**.

• Advising and Mentoring Support

Each student is assigned a faculty advisor for continuous academic guidance. Faculty mentoring, combined with early alert and intervention systems, supports student retention, progression, and completion, especially in foundational computing courses.

• Financial Assistance

The university provides institutional scholarships, need-based financial aid, and access to federal and state programs that reduce financial barriers for underrepresented and economically disadvantaged students.

• Inclusive Pedagogy

Faculty receive training in inclusive teaching practices, culturally responsive pedagogy, and Universal Design for Learning (UDL), ensuring that instruction accommodates diverse learning styles and student backgrounds, particularly in technical and design-oriented coursework.

• Hands-On and Experiential Learning

The curriculum emphasizes **project-based learning, portfolio development, and real-world application development** in areas such as web systems, interactive applications, multimedia production, and immersive technologies. These approaches improve engagement, persistence, and success among minority students in computing and digital technology fields.

Beyond the classroom, Capitol Technology University fosters an inclusive campus environment through multicultural programming, student organizations, and diversity-focused initiatives that promote cross-cultural engagement, leadership development, and a sense of belonging.

The Bachelor of Science in Interactive Media Technology and Design supports Maryland's 2022 State Plan for Postsecondary Education, particularly:

- **Goal 1: Student Access** – by expanding flexible, career-oriented educational pathways in high-demand computing and digital technology fields for underrepresented populations.
- **Goal 2: Student Success** – by providing advising, mentoring, financial support, and applied learning experiences that promote persistence, completion, and career readiness.

O. Relationship to Low Productivity Programs Identified by the Commission

1. Relationship to Low Productivity Programs and Resource Redistribution

The proposed Bachelor of Science in Interactive Media Technology and Design is not a direct continuation, merger, or redesign of any specific low-productivity program identified by the Maryland Higher Education Commission. However, its development reflects Capitol Technology University's broader strategic initiative to optimize academic resources, enhance program alignment with workforce needs, and improve overall institutional efficiency.

Through internal academic planning and program review processes, the University has identified opportunities to better align faculty expertise, computing infrastructure, and instructional resources with high-demand fields such as **software development, digital media, user experience (UX/UI) design, data visualization, and interactive technologies**. The proposed program builds on this strategic direction by leveraging existing strengths across computer science, software engineering, and applied technology disciplines.

The program will support efficient resource utilization in the following ways:

• Faculty Optimization

Existing faculty with expertise in **computer science, artificial intelligence, software engineering, data science, and digital media technologies** will be strategically assigned across the Interactive Media Technology and Design curriculum. This approach maximizes instructional capacity while maintaining high-quality, interdisciplinary instruction.

• Shared Laboratory and Computing Infrastructure

The program leverages existing computing laboratories, software development environments, and multimedia production facilities. These shared resources are already in use for related programs and will support the proposed program without requiring significant additional capital investment.

• Integrated Academic Support

Administrative, advising, and academic support services are shared across computing and technology programs, promoting operational efficiency and consistent student support.

• Program Alignment and Efficiency

The Interactive Media Technology and Design program provides a focused, interdisciplinary pathway that integrates **software development, user-centered design, and interactive media systems**. This structure reduces fragmentation across smaller or under-enrolled course offerings and strengthens overall program coherence and sustainability.

• Enrollment Growth and Sustainability

The program is expected to attract students interested in **applied, career-focused education in computing and digital technologies**, particularly in areas such as web development, UX/UI design, and interactive media. By aligning with workforce demand, the program supports increased enrollment, improved retention, and enhanced institutional productivity.

P. Adequacy of Distance Education Programs

1. Eligibility to Provide Distance Education

Capitol Technology University is fully authorized by the Maryland Higher Education Commission (MHEC) to offer distance education programs. The University has extensive experience delivering online and hybrid instruction at both the undergraduate and graduate levels across **computer science, information technology, engineering, and business disciplines**.

Capitol Technology University is a participant in the **National Council for State Authorization Reciprocity Agreements (NC-SARA)**, which authorizes the institution to offer distance education to students residing in other SARA member states. This participation ensures compliance with interstate distance education regulations and supports broader student access.

The University's distance education infrastructure includes a robust learning management system (**Canvas**), cloud-based academic and administrative systems, and comprehensive faculty training programs. These resources support high-quality instruction and ensure consistency with institutional, state, and national standards.

2. Compliance with C-RAC Guidelines

Capitol Technology University affirms full compliance with the **Council of Regional Accrediting Commissions (C-RAC)** guidelines for the evaluation of distance education. The University ensures that all online and hybrid courses maintain the same level of academic rigor, integrity, and student engagement as on-campus offerings.

Specific measures include:

• Curriculum Quality and Learning Outcomes

Course content, learning outcomes, and assessment methods are equivalent across on-campus, hybrid, and online delivery formats.

• Regular and Substantive Interaction

Faculty provide consistent engagement through virtual meetings, discussion forums, collaborative projects, timely feedback, and academic advising.

• Student Identity Verification

Secure authentication systems and assessment tools are used to verify student identity and maintain academic integrity.

• Access to Student Services

Online students have full access to advising, tutoring, library resources, technical support, and career services equivalent to those available on campus.

• Technology Infrastructure

The University maintains a reliable and scalable digital environment that supports Canvas, synchronous learning tools, cloud-based development platforms, and multimedia technologies.

• Faculty Training

Faculty teaching online or hybrid courses complete required training in online pedagogy, course design, and effective use of the learning management system, with additional support for teaching **programming, design, and interactive media courses** in digital environments.

3. Program Delivery Considerations

The Bachelor of Science in Interactive Media Technology and Design is delivered in a **hybrid-flexible format**, combining face-to-face instruction with online and hybrid course offerings.

Unlike laboratory-intensive engineering programs, this program is well-suited for distance education due to its emphasis on:

- Software development and programming
- Web and mobile application development
- User experience (UX/UI) design
- Multimedia production and digital content creation
- Data visualization and interactive systems

Many courses utilize industry-standard software, cloud-based tools, and collaborative platforms that support remote development and design workflows.

However, select courses—particularly those involving **collaborative design studios, project-based learning, and immersive technologies (e.g., AR/VR)**—may include face-to-face or hybrid components to enhance hands-on experience and team interaction.

All online and hybrid components of the program will be designed and delivered in full compliance with **MHEC and C-RAC standards** to ensure academic quality, accessibility, and student success.