

# Interactive Multimedia and Design (IMD)

---

## Inter. Multi Media & Design (IMD) Courses

### School of Information Technology

### Faculty of Engineering & Design

#### IMD 1000 [0.5 credit]

##### Introduction to Interactive Multimedia Design

Overview of interactive multimedia design including copyright, computer architecture, web design and mark-up languages, general logic design, multimedia project management, design process for animated film, video game development, special effects in movies, and current trend analysis in the multimedia field.

Prerequisite(s): restricted to students in the B.I.T. degree program.

Lecture three hours a week.

#### IMD 1001 [0.5 credit]

##### Graphic Design

Introduction to the graphic design process. Topics include the history of graphic design, principles of design, common layouts, and grid systems. Fundamentals are applied to create effective communication for both print and screen. Industry standard software packages are covered.

Prerequisite(s): restricted to students in the B.I.T. degree program.

Workshop three hours a week.

#### IMD 1002 [0.5 credit]

##### Visual Dynamics

Fundamentals of composition with emphasis on realistic rendering. Students learn how to execute thumbnails and design comprehensives. Topics include illustration, type, colour, texture, proximity and unity, alignment, repetition and continuity, contrast, size relationships, balance, rhythm, negative space, cropping and view selection.

Prerequisite(s): restricted to students in the B.I.T. degree program.

Workshop three hours a week.

#### IMD 1003 [0.5 credit]

##### Computer Programming

Introductory course on developing computer applications, including computer architecture, program execution, preprocessing, building and debugging, algorithms, structured programming, data types, basic programming constructs and control structures, simple file and screen operations, arrays and pointers, memory allocation, and basic concepts in 2D graphics programming.

Prerequisite(s): restricted to students in the B.I.T. degree program.

Lecture: three hours a week; laboratory two hours a week.

#### IMD 1004 [0.5 credit]

##### Software Tools

Application of vector and raster-based image tools for interface design. Topics include: project planning, scope documents, navigation flowcharts, wireframes, design composites, group dynamics, preparation of assets for production, and tools for client communication.

Prerequisite(s): restricted to students in the B.I.T. degree program.

Workshop three hours a week.

#### IMD 1005 [0.5 credit]

##### Web Development

Introduction to Web development. Combining graphics, text, audio, and video to create Web sites; developing different, major working Web sites on an individual basis and in groups, using valid xHTML, cascading style sheets (CSS), JavaScript and XML structures.

Prerequisite(s): restricted to students in the B.I.T. degree program.

Workshop five hours a week.

#### IMD 2000 [0.5 credit]

##### Multimedia Data Management

Issues regarding the back-end organisation of information and multimedia with a specific focus on databases and database design, server-side scripting, the structured query language (SQL), storage and compression of media, handling media over a network (including media streaming), digital rights management, and digital watermarking.

Precludes additional credit for COMP 2006

Prerequisite(s): IMD 1003 and IMD 1005.

Lecture three hours a week, tutorial/ laboratory two hours a week.

#### IMD 2001 [0.5 credit]

##### Design and Authoring I

Lectures and projects on multimedia design and development. Topics include timeline animation, scripting, user interaction, and the integration of text, images, vector artwork, and audio into multimedia projects. Current multimedia authoring software is covered.

Prerequisite(s): second-year standing in the IMD program.

Workshop four hours a week.

#### IMD 2002 [0.5 credit]

##### Design and Authoring II

Industry standard production techniques are used to create functional multimedia projects that are ready for online deployment. Topics include project structure, working with dynamic data, preloading techniques, file size optimization, and integration of graphics, audio, and video. Current multimedia authoring software is covered.

Prerequisite(s): IMD 2001 and second-year standing in the IMD program.

Workshop three hours a week.

**IMD 2003 [0.5 credit]****Audio and Video**

The creation, production and editing of audio and video for multimedia applications. Topics include single camera recording and capture techniques through to post-production editing. Emphasis is placed on production and operation skills while adhering to industry standard costs and deadlines.

Prerequisite(s): second-year standing in the IMD program. Workshop four hours a week.

**IMD 2004 [0.5 credit]****Intermediate Programming**

A study of object-oriented programming with emphasis on techniques used in multimedia applications. Topics include basic and user defined data structures, classes, memory management, basic image processing, and plug-in development.

Prerequisite(s): IMD 1003.

Lecture three hours a week, tutorial/laboratory three hours a week.

**IMD 2900 [1.0 credit]****Design Studio 1**

Web application development. Using a multidisciplinary approach, teams develop a comprehensive, Web-based application. Topics include users, storyboarding, data management, prototyping, project and content management, marketing, testing, and product evaluation. Client- and server-side technologies will be used to enhance functionality.

Prerequisite(s): second-year standing in the IMD program. Studio/lecture eight hours a week.

**IMD 3001 [0.5 credit]****Aspects of Product Design Methodology**

Important issues in designing successful computerized products, including design guidelines, usability testing and user-needs analysis. Experienced designers and researchers from industry participate.

Also listed as PSYC 4800.

Prerequisite(s): third-year standing in the IMD program. Lectures three hours a week.

**IMD 3002 [0.5 credit]****3D Computer Graphics**

Technical aspects of 3D computer graphics. Homogeneous transformations, viewing pipeline, cinematography, modeling techniques (explicit and implicit), scene composition, level of detail, advanced lighting techniques (BRDF, IBL, subsurface-scattering), 2D/3D texturing, local/global illumination, image-based and non-photorealistic rendering, and rendering effects.

Prerequisite(s): IMD 2004 and IMD 3900. Lectures three hours a week, tutorial/laboratory two hours per week.

**IMD 3003 [0.5 credit]****Communication Skills for IMD**

Development of competence in written and oral communication related to multimedia design. Needs analyses, use-case scenarios, development and management of content, technical reports, and related project documents; oral presentations.

Prerequisite(s): restricted to students in the B.I.T. degree program.

Lecture and tutorial three hours a week.

**IMD 3004 [0.5 credit]****Human Computer Interaction and Design**

Introduction to concepts centered on Human-Computer Interaction from hardware and software perspectives.

Topics include design principles, usability principles and engineering, solving user-centred problems, device interaction, and graphical user interface design (2D and 3D interfaces).

Prerequisite(s): third-year standing in the IMD program.

Lectures three hours a week.

**IMD 3900 [1.0 credit]****Design Studio 2**

Introduction to the artistic perspective on 3D graphics and animation. Practical studio sessions; use of popular modeling and animation packages; modeling, texturing, materials, cameras, lighting, keyframe animation, rendering.

Prerequisite(s): third-year standing in the IMD program. Studio/lecture eight hours a week.

**IMD 3901 [1.0 credit]****Design Studio 3**

Device design. Studio-based projects focus on one or more special areas in multimedia, information and interaction design. Device design, form factors, information appliances, and computer-supported collaborative work.

Prerequisite(s): third-year standing in the IMD program and IMD 2900.

Studio/lecture eight hours a week.

**IMD 4002 [0.5 credit]****Technology and Culture**

An examination of the relationship between communication technology and society. The course examines the factors that contribute to changes in the collection, storage and distribution of information and the cultural implications of these changes.

Prerequisite(s): third-year standing in the IMD program.

Seminar three hours a week.

session and to determine the term of offering, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)

**IMD 4003 [0.5 credit]**

**3D Computer Animation**

Advanced topics in computer animation: principles of animation, motion capture, forward/inverse kinematics (hierarchical systems), key-framing, motion editing/retargeting/interpolation, soft-body animation (freeform deformation and shape interpolation), character animation (walking/locomotion, rigging, weighting, and facial animation), particle systems, dynamic systems (cloth, fluid, and hair), behavioural animation, match-moving.

Prerequisite(s): IMD 3002.

Lecture three hours a week, tutorial/laboratory two hours a week.

**IMD 4005 [0.5 credit]**

**Advanced Topics in Multimedia**

Advanced topics in multimedia industry not ordinarily treated in the regular course program due to their contemporary subject matter. The choice of topics varies from year to year.

Precludes additional credit for IMD 4004 (no longer offered).

Prerequisite(s): fourth-year standing in the IMD program.

Lecture three hours a week.

**IMD 4901 [1.5 credit]**

**Senior IMD Project**

Student-initiated design project, developed in association with a project supervisor, and external industry advisor, supported by a written report (with printed and electronic versions), seminar discussions, and appropriate methods of two and/or three-dimensional representation. All proposals must be approved by the Program Project Committee.

Prerequisite(s): IMD 2900, IMD 3900, and fourth-year standing in the IMD program.

Tutorial hours arranged.

**IMD 4902 [1.0 credit]**

**Design Studio 4**

Lectures and projects on interactive multimedia systems for art and entertainment, especially computer games, covering the production process from idea to design, development and testing, and also discussing related topics and technologies such as management skills, character and story development, game engines, and online games.

Precludes additional credit for IMD 4900.

Prerequisite(s): IMD 2900, IMD 3002 and fourth-year standing in the IMD program.

Studio/lecture eight hours a week.

**Summer session:** some of the courses listed in this Calendar are offered during the summer. Hours and scheduling for summer session courses will differ significantly from those reported in the fall/winter Calendar. To determine the scheduling and hours for summer session classes, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)

Not all courses listed are offered in a given year. For an up-to-date statement of course offerings for the current