

# Degree Requirement

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The IMGD MS degree is a 30-credit graduate degree featuring a core, focus, electives, and a thesis or a project. WPI IMGD undergraduates have the opportunity to complete the proposed MS degree with the addition of a fifth year of education (see BS/MS Program).

The credit and course distributions are shown below. Note that WPI requires a minimum Grade Point Average (GPA) of 3.0 for all courses counting toward an MS degree.

Current students may download Plan of Study forms here:

The MS Degree in IMGD, featuring Core, Focus, Electives, and a Thesis or a Project:

## **Core Courses – Choose 3 of 4 (9 credits)**

IMGD 5100. Immersive Human-Computer Interaction (3)

IMGD 5200. History and Future of Immersive and Interactive Media (3)

IMGD 5300. Design of Interactive Experiences (3)

IMGD 5400. Production Management for Interactive Media (3)

## **Focus Courses (6 credits)**

*Technical Focus (6) or*

*Serious Games Focus (6) or*

*Management Focus (6)*

## **Game Design (3 credits)**

IMGD 5000. Game Design Studio (3)

## **Elective Courses (3 credits)**

Selected from the courses in the Core and Focus areas, or IMGD 5099 (Special Topics in IMGD).

## **Thesis/Project (9 credits)**

*IMGD 5900. Master's Thesis or*

*IMGD 5910. Master's Project*

Credit distribution for the MS Degree:

Component	Credits
Core Courses	9
Focus Courses	6
Game Design	3
Elective Courses	3
Thesis/Project	9
<b>Total</b>	<b>30</b>

## Focus & Elective Courses

Students must take 6 credits in a single Focus Area (Technical, Serious Games, or Management), and 6 elective credits. The elective courses are to be taken from either the Focus Areas or the Core Courses, IMGD 5099 (Special Topics in IMGD), or other relevant courses, including independent study (ISG), approved in advance by the student's academic advisor. This educational structure is designed to provide students with both depth and breadth, and to allow students to tailor the IMGD degree to fit interests and career goals. The intent of each Focus Area is as follows:

The *Technical Focus Area* is designed for those with a software development background looking to deepen or expand their technical knowledge of interactive media and game development.

Courses: Graphics/Imaging (CS 543, CS 545/ECE 545, CS 549, CS 563), Software Engineering (CS 509, CS 562), Networks/Systems (CS 513/ECE 506, CS 529, CS 530/ECE 530, CS 533/ECE 581, CS 577/ECE 537), Artificial Intelligence (CS 534, CS 538, CS 539, CS 540, CS 566, CS 568), Human-Computer Interaction (CS 546, CS 565, CS 567), IMGD (IMGD 4000, IMGD 4100)

The *Serious Games Focus Area* is designed for those wishing to apply interactive media and game design techniques to applications in areas such as education, simulation, social science, and interactive art.

Courses: Learning Sciences and Technology (PSY 501, PSY 502, PSY 503, PSY 504, PSY 505), System Dynamics (SD 550, SD 551), IMGD (IMGD 4500, IMGD 4600, IMGD 4700)

The *Management Focus Area* is designed for those wishing to work on the business side of games and other interactive media.

Courses: Entrepreneurship (ETR 500, ETR 593, ETR 594, ETR 596), Finance (FIN 500), Management Information Systems (MIS 500), Organizational Behavior (OBC 500, OBC 501), Marketing (MKT).

Other WPI graduate courses may upon prior request be approved by the IMGD Steering Committee for MS credit in any focus area.

## Thesis or Project

All students must complete a culminating thesis or project related to interactive media and games. A thesis or project involves 9 credits (course number IMGD 5900 for theses or IMGD 5910 for projects) of innovative work done with close supervision by IMGD faculty.

A *Master's thesis* must articulate a research question or identify a need and create a systematic approach to addressing that identified questions or need. Each thesis typically involves a single student, although the work may be related to thesis work by other students. Students are encouraged to include a development effort, where development may include programming, design, and/or content creation. A thesis must also include a substantial evaluation component. Thesis work will culminate in a formalized written report of publishable quality that addresses an academic community.

A *Master's project* must propose a substantial development effort that follows a production plan to implement a design vision. Development may include programming and/or content creation. Teamwork with other IMGD graduate students is required. The end product of a Master's project must be a professionally polished application that is ready for public dissemination, such as a game ready for play. This final product must be tested with users from the target audience and accompanied by a report that critically discusses choices and provides assessment of the process and product.

The following summarizes some of the differences between a typical thesis and a typical project.

## **MASTER'S THESIS**

1. Poses and answers a research question
2. Is done individually
3. Includes substantial evaluation
4. Results in a potentially publishable paper (e.g., a peer-reviewed conference or journal paper)

## **MASTER'S PROJECT**

Formulates and works from a production plan

1. Is done in teams
2. Results in a body of thematically-related materials that convey a design
3. Delivers a working, user-tested, and marketable interactive media application (e.g., a game)

Each thesis and project is supervised by a committee of three faculty members, one of whom is the principal advisor. The principal advisor and one other committee member must be from the IMGD faculty. The committee must be approved by the IMGD graduate committee before the project or thesis is started. Before completion all theses and projects must be presented or demonstrated publicly. During this presentation or demonstration, the committee serves as the examiners. Before completion, the committee must be approved the form and content of the final version of the thesis or project by majority vote. The principal advisor assigns a grade for the thesis or project credits.

## **THESIS/PROJECT PROPOSALS**

A completed and approved thesis/project proposal is a key milestone in the MS program. The recommended timetable for progress towards this milestone is as follows:

- Starting upon arrival, MS students should begin to explore possible thesis/project topics with IMGD faculty members and other graduate students.
- By halfway through their second semester, MS students should come to an informal agreement with a particular faculty member to supervise a thesis or project.

- Before the end of their second semester each student should have a one-paragraph description of their thesis/project topic approved by their supervisor and a bibliography of six to ten relevant sources that the student will read (e.g., over the summer) in preparation for writing their complete proposal.
- BY the end of the first month of their third semester, MS students should submit a complete thesis/project proposal to the IMGD Steering Committee for approval. The proposal document shall be approximately five pages (in 10pt two-column single-space format) and clearly describe the
  - Supervisor and committee members,
  - goal,
  - motivation,
  - participants,
  - timetable,
  - required resources
  - and method of evaluation

of the thesis/project. For a thesis, the proposal should be in scientific paper style, including related works and references. For a project, the proposal may be in a more informal industrial style, such as a “game treatment”.

A completed thesis/project proposal should be submitted to the secretary of the IMGD steering committee (which includes the IMGD graduate committee) for discussion at the next convenient meeting. At this meeting, the proposal and supervising committee will either be approved, or the proposal will be returned to the student and advisor for revision and re-submission. Once the thesis/project proposal is approved, the supervisor will become the student’s academic advisor, if that is not already the case.

Students should register for IMGD 5900 or 5910 as soon as possible after they have begun working on a proposal. Ideally, this will be their *second semester*. Students are expected to have an accepted proposal by the end of the earliest semester in which they are registered for IMGD 5900 or 5910.

*BS/MS students* who plan to graduate in one year should plan to accelerate the schedule above by exploring possible thesis/project topics during their senior year and submitting a proposal and registering for IMGD 5900 or 5910 in their first semester as a graduate student.

## **SUBMISSION OF THESIS/PROJECT**

Students are required to submit an electronic version of their approved theses/projects entirely through the Web on the Electronic Theses and Dissertations (ETD) site. The ETD requires:

1. The ETD Approval Form, obtained online
2. A copy of the title page, with all appropriate faculty and student signatures
3. The thesis or dissertation converted to PDF and uploaded via the ETD Web Site

Detailed directions for creating/submitting ETDs are available online at <http://www.wpi.edu/+etd>

## **GUIDELINES FOR THE M.S. PRESENTATION**

Please see document [here](#).

### **Undergraduate and Graduate Credit**

The IMGD program allows select undergraduate courses to count towards the MS degree. These courses are:

1. IMGD 4000. Technical Game Development II
2. IMGD 4100. Artificial Intelligence for Interactive Media and Games
3. IMGD 4200. History and Future of Immersive and Interactive Media
4. IMGD 4500. Artistic Game Development II
5. IMGD 4600. Serious Games
6. IMGD 4700. Advanced Storytelling: Quest Logic and Level Design

Each of these undergraduate courses is equivalent to 2 graduate credits. No more than 8 graduate credits can be obtained through undergraduate course, with the exception of course for BS/MS students, described in the next paragraph.

### **Notes**

Students should have an IMGD BS degree, an equivalent degree, or equivalent experience before entering the MS program. Those who do not may need to take appropriate undergraduate courses before progressing through the graduate degree program.