Complete this form entirely.

Effective Term for course: Winter 2010

Is This A Topics Course? No

Subject (Discipline) Name/Code: CIS

Course Number: 652

Full Course Title: Information Visualization and Multimedia Gaming

Course Title Abbreviation: Inf Vis and Mult Gaming

School or College: Engineering and Computer Science

Department: Computer and Information Science

Credit Hours: Total 3

Type Hours Type Hours Type Hours
Lecture (L) 3 Rec (R) or Audio/Video (A)
Seminar (S) Ind Study (I) Dist. Learn (G) 3
Lab (B) TV (T) Internet/email (N)
Dis (D) Int./Co-op (C) Comp.-aided (O)

Repeat Status: (if applicable, enter "X" for one and total credits if any)

Repeatable for full credit when topic differs: for total credit hours toward program:

Course may be repeated for full credit: for total credit hours toward program:

Course Level: (enter “X” for all that apply)

Undergraduate (UG) Graduate (GR) Rackham (RA) Professional Development (PD)

Corequisites: (must be taken concurrently):

Subject/Discipline Course Number

Equivalent:

Subject/Discipline Course Number Beginning Term Ending Term

Crosslistings:

Subject/Discipline Course Number Beginning Term Ending Term

Equivalents:

Subject/Discipline Course Number Beginning Term Ending Term

Associated Fees:

Course fee (TCRS) Amount

Lab fees (TLAB) Amount

Degree/Certificate Program Attributes: (enter “X” for those that apply)

Additive Credit Remedial Course
Honors Course Distance Learning
Professional Development Certificate (list below):

Course Description (as it should appear in the Announcement): (attach additional page if necessary)

This course introduces techniques for digital animation, computer and video games, and web multimedia. We will study the process of creating animated video clips from start to finish, including story creation, storyboard, modeling, animation, and post-production. Then we will learn several key techniques for motion generation, including keyframe, collision detection, particle system, physical simulation, and motion capture editing. Web animation and multimedia techniques will also be addressed.
**Frequency of Offering:** (enter “X” for all that apply)

- [X] Fall (F)
- [ ] Alternating Years (AY)
- [ ] Winter (W)
- [ ] Occasionally (OC)
- [ ] Summer (S)
- [ ] Yearly (YR)

**Maximum Enrollment (Optional):**

---

**Registration Restrictions (see instructions):**

**Class:**
- [X] Freshman (FR)
- [ ] Sophomore (SO)
- [X] Junior (JR)
- [X] Senior (SR)
- [ ] Graduate (GR)
- [ ] Post-Baccalaureate Certification Only (PC)
- [ ] Post-Baccalaureate NCFD (PN)
- [ ] Undergraduate Certification Only (UC)
- [ ] Undergraduate NCFD (UN)

**Degree:**
- [ ] include
- [X] exclude

**College:**
- [ ] include
- [X] exclude

- [ ] CASL
- [X] EDUC
- [X] MGMT
- [ ] ENGIN

**Majors (fields):**
- [ ] include
- [X] exclude

**Level:**
- [ ] include
- [X] exclude

- [X] Undergraduate (UG)
- [ ] Graduate (GR)
- [ ] Rackham (RA)
- [ ] Professional Development (PD)

**Program:**
- [ ] include
- [X] exclude

**Prerequisites:**

<table>
<thead>
<tr>
<th>Subject/Disc.</th>
<th>Course Number</th>
<th>Minimum Grade</th>
<th>Concurrently</th>
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</thead>
<tbody>
<tr>
<td>CIS</td>
<td>515</td>
<td></td>
<td>yes</td>
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<tr>
<td>Consent</td>
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<td>yes</td>
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<td>yes</td>
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<td>yes</td>
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</tbody>
</table>

(Add additional page if necessary)

**Other Requirements:**

Special library, classroom type, or laboratory requirements:

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**Supporting Statement and Rationale (Specific guidelines and instructions available from each academic unit.) Attach additional page.**

Names and rank of instructor(s): Jie Shen, David Yoon

Attach Form 72-73 for non-tenure track faculty who plan to teach graduate courses.

The proposed action has been approved by the appropriate committees. (List all):

**Committee:** CIS Curriculum Committee
**Date:** 10-14-09

**Committee:**
**Date:**

**Committee:**
**Date:**

**Committee:**
**Date:**

**Approved by:**

---

**Originating Department**

**Date:** 10-14-09

**Crosslisting Department**

**Date:**

**Crosslisting Department**

**Date:**

**Rackham Program Coordinator**

**Date:**

**Approved by school or college:**

**Dean (or designate)**

**Date:**

**Academic Affairs**

**Date:**

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This course is to be taken by masters and PhD students who want to study computer animation techniques. Topics include:

<table>
<thead>
<tr>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to visualization, animation and gaming</td>
</tr>
<tr>
<td>Image formats, compression, key frames</td>
</tr>
<tr>
<td>Morphing</td>
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<tr>
<td>Digital movement control</td>
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<tr>
<td>Motion capture</td>
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<tr>
<td>Physics-based animation</td>
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<td>Particle systems</td>
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<tr>
<td>Digital modeling</td>
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<tr>
<td>Information visualization</td>
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<tr>
<td>Real-time rendering</td>
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<tr>
<td>Game engines</td>
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<tr>
<td>Web multimedia</td>
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<tr>
<td>Multimedia networking</td>
</tr>
</tbody>
</table>