

---

**Course Title: Principles of Interactivity**

**Course Number: MTM215**

**Course Prerequisites: none**

**Credit Hours: 3**

**General Studies Credits: 0**

---

### **I. Course Description:**

As viewers increasingly take on roles of active participants in new technologies, the need has arisen for the assessment of the scope of interactive processes in the multitude of media such as computers, cinema, TV and web technologies, and virtual reality. The course traces the development of new media from their historical perspectives to their possible future developments within the framework of interactivity, and how participants' roles are going to evolve as new technologies emerge. This course will explore the criteria of meaningful interactions and will give students a basis for developing immersive interactive experiences.

### **II. Course Goal**

Students will gain a solid foundation in both the theoretical aspects of the principles of interactivity and the more practical aspects of designing interactive experiences. They will create a proposal for an innovative interactive project that involves multiple human agents, and will provide a critical analysis.

### **III. Program Objectives (Core, General Education, Degree):**

The outcomes of this course are aligned and developed to support the following Program Objectives. Program Objectives may be supported by multiple courses.

#### **1. General Education**

**Objective 1:** Students employ a diverse set of thinking approaches in appropriate situational contexts to produce successful outcomes.

#### **2. Digital Media**

**Objective 2:** Create examples of dynamic, kinetic and generative design work through audio, video, animation, robotics, sculpture, mobiles or process-based art;

**Objective 3:** Produce multimedia based and multi-modal interactive design projects;

#### **3. Human Computer Interaction**

**Objective 2:** Evaluate the impact of new and emerging technology trends on human-computer interactions and the user experience.

**Objective 6:** Prototype and produce innovative interfaces or interactions for at least two of the following: web, PC, mobile, handheld or next generation platforms, including all production materials required in a complete pipeline using industry standard tools, software and production processes.

#### **4. Technology Product Design**

**Objective 1:** Prototype and produce at least two original devices that allow interactions with at least two of the following: web, PC, mobile, handheld or next-generation platforms, including all the production materials required in a complete production pipeline.

**Objective 2:** Create and implement interfaces and interactivity, focusing on accepted design principles and aesthetics utilizing industry-standard tools, software and production processes.

#### **5. Technology Studies**

**Objective 6:** Articulate the influence of new media and the internet on society, and the ways information and communication technologies interact with professions such as education, medicine, business, law, environmental protection and remediation, nonprofit work, governance and the sciences.

#### **IV. Performance Objectives:**

Upon successful completion of this course, the student will have demonstrated competency in the following objectives:

1. Explain foundational concepts of the principles of interactivity.
2. Explore aesthetic ideas and visual structures through the analysis of multimedia art and design projects
3. Identify the historical precedents and philosophies of the interactive processes and artists in XIX and XX century
4. Critically analyze the strengths and weaknesses of various interactive projects
5. Evaluate the most appropriate mode of interaction to achieve a particular aesthetic result
6. Create small-scale interactive works inspired by modern technological innovations such as the internet, robotics, virtual reality and genetic engineering, among others.
7. Present and critique students' projects

#### **V. Unified Assessments:**

1. Week 1: Research and Discussion – concepts and definition of interactivity
2. Week 10: Assignment: artists and presentations
3. Week 2: Discussion – historical examples
4. Week 6 Assignment
5. Week 4: Interactive Project Proposal Assignment
6. Week 8: Processing assignment
7. Week 15: final project presentations and critique

#### **VI. Performance Evaluation:**

Successful completion of this course requires students to obtain an overall cumulative grade of 60% or higher. Rating of the student's success in completing the stated objectives of this course will be based on the following percentiles:

1. Discussions = 25%
2. Final Project = 30%
3. Assignments = 35%
4. Readings = 10%

#### **VII. Teaching Strategies:**

The University of Advancing Technology actively utilizes the Year-Round Balanced Learning (YRBL) model for addressing different learning styles. The YRBL model consists of five delivery methods that include modified lecture, tutorial teaching, group recollection, student teachback and discovery learning. Students will engage in both synchronous learning activities in regular class periods and asynchronous (possibly online) activities. Group activities and team building are strongly encouraged within the synchronous and asynchronous environments.

The University of Advancing Technology holds non-exclusive rights to student projects to publish for promotional purposes only. By attending the school, students give implicit permission for the school to use their work in catalogs, brochures, etc. Students retain original rights to their projects and may market them as they see fit.

#### **VIII. Instructional Materials and References:**

Online material and resources provided by the instructor.

##### **Recommended:**

**Programming Interactivity** by Joshua Noble  
Publisher: O'Reilly; 2nd edition (2012)

#### **IX. Credit Award Rationale:**

##### **Course Credit Award: 3 Credits**

Class Hours (In Class, Asynchronous):

- Term: 45 Hours
  - 30 hours synchronous (in class)

- 15 hours asynchronous
- Week: 3 Hours
  - 2 hours synchronous (in class)
  - 1 hour asynchronous

Outside of Class (Reading, Research, Homework, Assignments, Projects, etc):

- Term: 90 Hours
- Week: 6 Hours

## X. Course Outline:

### PRINCIPLES OF INTERACTIVITY

#### Week 1

- Weekly Overview: introduction to the course; discussion and introduction to the multimedia*

#### Course Class Hours

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Course Overview	In Class, 1/2 hour	Modified Lecture Discovery Learning	Knowledge, Comprehension			
Lecture: Definition/Digital Revolution	In Class, 1 Hour	Modified Lecture Discovery Learning	Knowledge, Comprehension		MTM215-01	
Introductions: instructor and students	Asynchronous 1 hour	Discovery Learning	Knowledge			
Screening: examples of interactive projects	In Class 1/2hour	Discovery Learning	Knowledge, Comprehension		MTM215-01	

#### Course Homework

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Online article: From new media to communication and the history	3 hours	NA	Knowledge, Comprehension		MTM215-03	
Research one example of interactive media project	2 hours	NA	Analysis, Knowledge		MTM215-01 MTM215-02	
Discussion: related to the reading	1hr				MTM215-03	

#### Week 2

- Weekly Overview: historical perspective - interactivity*

#### Course Class Hours

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
----------	------	------	---------	-----------------	------------------	-------------------

Discussion of assigned readings	In Class, 1 Hour	Modified Lecture, Discovery Learning	Knowledge, Comprehension Analysis	MTM215-03
PPT Lecture: History with screenings	In Class, 1 Hour	Modified Lecture, Discovery Learning		MTM215-03
Discussion: screening and review of some historical examples	Asynchronous, 1/2 Hour	Discovery Learning	Comprehension, Analysis	MTM215-03

### **Course Homework**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Find one early example of interactivity	2 hours	NA	Comprehension, Knowledge		MTM215-01	
Discussion: historic example found	2 hours	NA	Comprehension, Analysis		MTM215-03 MTM215-04	
Download Processing and check examples	2hrs	NA	Comprehension, Knowledge		MTM215-06	

### **Week 3**

- **Weekly Overview: Introduction to Processing**

### **Course Class Hours**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Share examples of Processing	1 hr	Discovery Learning	Knowledge, Analysis		MTM371-05	
Lecture: introduction to Processing - basics	In Class, 2 Hours	Modified Lecture, Discovery Learning	Knowledge, Comprehension		MTM215-06	

### **Course Homework**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Reading: online article: Josh Noble	4hrs		Comprehension, Analysis		MTM215-04	

Discussion: watch video Bill V.	2hrs		Analysis		MTM215-04	
---------------------------------	------	--	----------	--	-----------	--

## Week 4

- Weekly Overview: Design Basics – Interaction Design**

### Course Class Hours

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Lecture: Design and UX	In Class, 2 Hours	Modified Lecture, Discovery Learning	Knowledge, Comprehension		MTM215-02 MTM215-05	
Discuss online article	1/2hr	Discovery Learning	Knowledge, Comprehension		MTM215-02 MTM215-04	
Screening	In Class, 1/2 Hours	Modified Lecture, Discovery Learning	Knowledge, Comprehension		MTM215-02 MTM215-04 MTM215-05	

### Course Homework

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Assignment: Interactive Proposal	3 hrs		Synthesis		MTM215-05	
Discussion: Principle of Least Surprise	3 hr		Knowledge, Comprehension, Analysis		MTM215-02 MTM215-04	

## Week 5

- Weekly Overview: Processing cont.**

### Course Class Hours

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
----------	------	------	---------	-----------------	------------------	-------------------

Students' presentations of the assignment	In Class, 1 Hour	Discovery Learning, Teach Back	Knowledge, Analysis	MTM371-02
Lecture: Processing: Basic Mode, Loops and Conditionals	In Class, 2 Hours	Discovery Learning, Modified Lecture	Knowledge, Comprehension	MTM215-06

### **Course Homework**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Reading: David Jay Bolter	3hrs		Comprehension, Knowledge		MTM215-04	
Assignment: Processing	2hrs		Comprehension, Knowledge		MTM215-06	
Discussion: Marshall McLuhan	1hr		Comprehension, Knowledge		MTM215-04	

### **Week 6**

- **Weekly Overview: Interface**

### **Course Class Hours**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Lecture – Interfaces	In Class, 2 Hours	Modified Lecture, Discovery Learning	Comprehension, Knowledge		MTM215-02	
Screening: different interfaces	1/2hr	Discovery Learning	Comprehension, Knowledge		MTM215-02 MTM215-04	
Discussion of the reading	In Class, 1 2Hour	Discovery Learning	Knowledge and Analysis		MTM215-04	

### **Course Homework**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Discussion: examples of interfaces	2hrs		Comprehension, Knowledge		MTM215-02 MTM215-04	

Video: Ishii	1 hr		Comprehension, Knowledge		MTM215-02 MTM215-04
Reading: Olaf Bertelsen	1hr				MTM215-04
Assignment: Interactivity in Different Media	2hrs		Comprehension, Analysis		MTM215-04 MTM215-05

---

## Week 7

---

- **Weekly Overview: TV and Digital Cinema**

### Course Class Hours

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Presentations of the assignment	1hr				MTM215-02	
Lecture: Interactive TV	In Class, 1 Hour	Teach Back	Analysis		MTM215-04	
Screening: Lynn Hershman, Weinbren, etc	Asynchronous, 1-2 Hour	Teach Back	Synthesis		MTM215-02 MTM215-04	

### Course Homework

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Readings: online – digital cinema revolutionized	2hrs		Analysis, Knowledge, Synthesis		MTM215-04	
Assignment: find one example of new cinema and summarize	2hrs		Analysis		MTM215-02 MTM215-04	
Discussion: Future of cinema	2hrs		Knowledge		MTM215-04	

---

## Week 8

---

- **Weekly Overview: Processing – Mouse Control**

### Course Class Hours



Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Lecture: Processing	In Class, 2 Hours	Discovery Learning	Knowledge		MTM215-06	
Discussion	In Class, 1Hour	Teach Back	Synthesis and Evaluation		MTM215-06	

### ***Course Homework***

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Assignment: Processing	4hrs		Comprehension, Knowledge,		MTM215-06	
Reading: Myron Kruger	2hrs		Comprehension, Knowledge,		MTM215-04	

## **Week 9**

- ***Weekly Overview: Modes of Interaction – VR – Art + Design***

### ***Course Class Hours***

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Discussion of the reading	In Class, 2 Hours	Discovery Learning	Comprehension, Knowledge,		MTM215-04	
Lecture: Projections, Mirrors, Sound etc.	In Class, 1 Hour	Discovery Learning,	Comprehension, Knowledge,		MTM215-02 MTM215-04 MTM215-05	

### ***Course Homework***

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Reading: Manovich	2hrs		Comprehension, Knowledge,		MTM215-04	
Research one artist that deals with art and design	3hrs		Comprehension, Knowledge,		MTM215-02 MTM215-04 MTM215-05	
Discussion:	1hr		Evaluation		MTM215-02	

---

## Week 10

---

- *Weekly Overview: Modes of Interaction – Data Visualization and Games*

### **Course Class Hours**

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Presentations of students' artists	In Class, 2Hours	Modified Lecture, Discovery Learning	Comprehension, Knowledge		MTM215-02	
Lecture: DV and Games					MTM215-04	
Screening	In Class, 1 Hour	Teach Back	Application, Comprehension, Knowledge		MTM215-02 MTM215-04	

### **Course Homework**

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Assignment: games	2hrs		Comprehension, Knowledge		MTM215-02	
Discussion: Data V.	2hrs		Comprehension, Knowledge		MTM215-02	
Reading: Interactive Electronics	2hrs		Comprehension, Knowledge, Evaluation		MTM215-06	

---

## Week 11

---

- *Weekly Overview: Introduction to Arduino*

### **Course Class Hours**

Activity	Time	YRBL	Bloom's	Thinking Styles	Course Objective	Program Objective
Discussion of the readings	In Class, 1 Hour	Discovery Learning	Comprehension, Knowledge, Analysis		MTM215-04	
Lecture: Basics of Arduino	In Class,	Discovery	Comprehension,		MTM215-06	

---

2Hours	Learning, Modified Lecture	Knowledge,
--------	-------------------------------	------------

### **Course Homework**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Discussion: Tablet Computing	2hrs		Analysis		MTM215-02	
Reading: Christiane Paul	2hrs		Comprehension, Knowledge,		MTM215-04	
Assignment: Basic LED Project	2hrs		Comprehension, Knowledge,		MTM215-06	

### **Week 12**

- **Weekly Overview: LED Projects**

### **Course Class Hours**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Lecture: Simple LED Projects screening	In Class, 1 Hour	Modified Lecture, Discovery Learning	Comprehension, Knowledge, Application		MTM215-06	
Student Presentations: LED Project	In Class, 1 Hour	Discovery Learning	Comprehension, Knowledge		MTM215-07	
Introduction to the Final Project Proposal	Asynchronous, 1/2Hour	Teach Back	Application		MTM215-06	

### **Course Homework**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Reading: online - Barthes	2hrs		Comprehension, Knowledge,		MTM215-04	
Discussion	2hrs		Comprehension, Knowledge, Analysis		MTM215-04	
Work on Final Project	2hrs		Synthesis		MTM215-06	

---

## Week 13

---

- **Weekly Overview: Future Trends**

### **Course Class Hours**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Lecture and screening	In Class, 1 Hour	Modified Lecture, Discovery Learning	Comprehension, Knowledge,		MTM215-02	
Discussion: Robotics and AI	In Class, 1 Hour	Teach Back, Discovery Learning	Analysis, Knowledge		MTM215-02	
Work on final project	Asynchronous, 1-2 Hour	Teach Back	Analysis		MTM215-06	

### **Course Homework**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Assignment: vision for the future	2hrs		Analysis		MTM215-05	
Work on final project	4hrs		Synthesis		MTM215-06	

---

## Week 14

---

- **Weekly Overview: Lab**

### **Course Class Hours**

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
LAB	In Class, 1 Hour	Modified Lecture, Discovery Learning	Comprehension, Knowledge		MTM215-06	
LAB	In Class, 1 Hour	Discovery Learning, Tutorial	Comprehension, Knowledge, Application		MTM215-06	

---

Lab	Asynchronous, 1hr	Discovery Learning	Synthesis		MTM215-06	
-----	----------------------	-----------------------	-----------	--	-----------	--

### ***Course Homework***

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Work on the Final Project	6hrs		Knowledge, Application		MTM215-06	

## **Week 15**

- ***Weekly Overview: Presentations of the Final Projects and Critique***

### ***Course Class Hours***

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Presentations of final projects and critique	In Class, 2 Hours	Discovery Learning	Evaluation		MTM215-07	
Peer Review	Asynchronous, 1-2 Hour	Teach Back	Analysis and Evaluation		MTM215-07	

### ***Course Homework***

<b>Activity</b>	<b>Time</b>	<b>YRBL</b>	<b>Bloom's</b>	<b>Thinking Styles</b>	<b>Course Objective</b>	<b>Program Objective</b>
Feedback on the course	3hrs		Evaluation		MTM215-07	
Feedback on the final projects	3hrs		Evaluation		MTM215-07	

## **XI. Date of Last Review of Syllabus:**

12/26/12

The nature of course delivery necessitates some flex in the outline of the course due to holidays, project work, etc. Courses can potentially vary from the stated outline but will cover all of the material listed in the outline of the course.