

# وزارت علوم، تحقیقات و فناوری

دانشگاه هنر اسلامی تبریز

گزارش فاز ۱ طرح:

بررسی تطبیقی نحوه و روندهای آموزش رشته  
چند رسانه ای در دانشگاههای متفاوت کشورهای  
مختلف و امکان سنجی برای اجرا در ایران

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## بسمه تعالی

### مقدمه

بر اساس پرسشنامه مصوب شورای محترم پژوهشی دانشگاه، فاز یک این طرح پژوهشی مربوط به گردآوری اطلاعات در مورد رویکردها و شیوه های تدریس دوره های چندرسانه ای در دانشگاههای مختلف دنیا می باشد. بر این اساس پس از مطالعه چندین دانشگاه معتبر، تصمیم بر آن شد که تقسیم بندی کلی رویکردهای آموزش چندرسانه ای به چهار گروه عمده که در جهان وجود دارد انجام شود که اطلاعات جمع آوری شده بر اساس این تقسیم بندی در فاز دو مورد تحلیل قرار گرفته و مقایسه خواهد شد. اساس تصمیم گیری ها و بیان روشها در فاز سه بر مبنای اطلاعات فاز یک و تحلیلهای فاز دو خواهد بود. این تقسیم بندی ها عبارتند از:

۱- رویکرد مهندسی محور: در این رویکرد تدریس چندرسانه ای بعنوان یکی از شاخه های رشته فناوری اطلاعات در نظر گرفته شده و گروه آموزشی آن زیرمجموعه دانشکده IT می باشد. در اینجا مسائل تکنیکی ایجاد محصولات چندرسانه ای و تجهیزات زیرساختی چندرسانه ای مورد تدریس قرار می گیرد.

۲- رویکرد هنری: در این رویکرد رشته چندرسانه ای بعنوان یک گرایش هنری و با دید ارتباط انسانی مورد توجه قرار گرفته و لذا گروه آموزشی مربوط به آن زیر نظر دانشکده های هنر و علوم انسانی اداره می شود. در اینجا مسائل زیربنایی نظری از دیدگاه علوم انسانی و هنر در مورد رسانه و چندرسانه ای و ارتباط انسان و رسانه مورد تاکید قرار می گیرد.

۳- رویکرد طراحی و خلاقیت محور: در این رویکرد توجه اصلی روی تولید ایده های خلاقه توسط متخصصین رشته چندرسانه ای می باشد. به این ترتیب گروه های آموزشی مربوط به این رشته ها در دانشکده های معماری و طراحی گنجانده شده و بعضا رشته بصورت تحصیلات تکمیلی ارائه می گردد. هدف اصلی در این رویکرد پرورش نیروهای خلاق و توانا جهت ارائه خدمات به رشته های طراحی بخصوص معماری و طراحی صنعتی در ارائه بهتر ایده ها می باشد.

۴- رویکرد چندرسانه ای محض: این رویکرد به رشته چندرسانه ای به عنوان یک علم مجرد و تخصصی نگاه کرده و آنرا مستقل از سایر رشته ها می داند. در این دانشگاهها دانشکده چندرسانه ای بعنوان مجری آموزش رشته عمل نموده و از گرایشهای متعدد از قبیل «واقعیت مجازی»، «فیلم و پویانمایی» و «رابط کاربری» تشکیل می شود. تدریس چندرسانه ای در این دانشکده شامل کلیه مقاطع می باشد.

پس از بررسی دوازده دانشگاه بین المللی، چهار دانشگاه به دلیل تمایز برنامه ارائه شده در آنها و نزدیک بودن جایگاه این دانشگاه ها به یکدیگر در رتبه بندی جهانی انتخاب و بصورت عمده مورد مطالعه قرار گرفته و مطالب مورد نیاز خلاصه شده است. لیست دانشگاهها و نحوه نگرش آنها به موضوع چند رسانه به شرح زیر میباشد.

نام دانشگاه	نام کشور	دانشکده ارائه کننده برنامه
IOWA States Uni.	آمریکا	طراحی و معماری
MC Master Uni.	کانادا	IT & Computer Science
MMU	مالزی	چند رسانه ای
Griffith Uni.	استرالیا	IT & Computer Science
Bradley Uni.	آمریکا	چند رسانه ای
Queensland Uni.	استرالیا	IT & Computer Science
Academy of Art	آمریکا	دانشکده هنر
Swinburne Uni.	استرالیا	طراحی و معماری
SIAT	کانادا	چند رسانه ای
DUT	دانمارک	IT & Computer Science
Huddersfield Uni.	انگلستان	طراحی و معماری
UTS	استرالیا	چند رسانه ای

پس از انجام تقسیم بندی های رویکردی، تصمیم بر آن شد که جهت پوشش بیشتر و متعادل کلیه تفکرات موجود در عرصه آموزش چند رسانه ای، بعنوان مورد مطالعه در هر گروه یک دانشگاه که بصورت مشخص تاکید بر آموزش چند رسانه ای بر اساس رویکرد آن گروه را دارد انتخاب شود. حتی المقدور سعی شد پراکندگی مکانی در انتخاب موارد رعایت گردد و نیز دانشگاههای مورد انتخاب از اعتبار علمی بالایی در سطح بین المللی برخوردار باشند. بدین ترتیب دانشگاههای ذیل با توجه به دو شرط مذکور انتخاب گردیدند:

موارد انتخابی عبارتند از:

- گروه یک: Queensland University – Australia

- گروه دو: Academy of Art - USA

- گروه سه: Swinburne - Australia

- گروه چهار: SIAT - Canada

پس از انتخاب دانشگاهها اطلاعات مربوط به برنامه آموزشی آنها استخراج گردیده و کلیه این اطلاعات بصورت یکسان و هماهنگ طبقه بندی گردید تا در فاز دوم که مربوط به مقایسه اطلاعات است، مقایسه استاندارد و یکپارچه ای صورت پذیرد. این اطلاعات شامل معرفی دانشگاه و سابقه علمی رشته چندیروسانه ای در آن، فهرست و تعداد واحد دروس مربوط به رشته، تعریف و شرح برنامه هریک از دروس می باشد. در اینجا شرح مختصری از برنامه هر یک از دانشگاه های نام برده فصل اول (فاز یک) در چهار بخش ارائه می شوند.

# ۱ شرح اجمالی برنامه مورد اجرا در دانشگاه Queensland استرالیا:

## ۱.۱ توضیح اجمالی برنامه:

کارشناسی چندرسانه ای یک برنامه استدیو محور می باشد که مهارت ها و علوم طراحی و اجرای سطح بالای محصولات چندرسانه ای را در اختیار دانشجویان قرار می دهد. هدف اصلی این برنامه آمیختن مباحث نظری و رویکردهای فناورانه و ترکیب عملکردهای آنها و بخدمت گیری این مهارتها جهت اجرای پروژه های صنعتی می باشد. دانش آموختگان این برنامه افرادی با مهارتهای متعدد می باشند که فهم بالایی از فرایندهای تکرار شونده بازسازی سیستمهای چندرسانه ای را دارا می باشند. دروس این برنامه به طور کلی پوشش دهنده چهار جریان اصلی می باشند: ۱- طراحی رسانه دیجیتال ۲- کسب مهارتهای مربوط به فناوری ۳- اجرای پروژه های عملی و کسب تجربیات استدیویی ۴- اجرای پروژه های انتخابی با توجه به علایق دانشجویان

## ۱.۲ چشم انداز کلی به برنامه:

مدت زمان اجرای برنامه	۳ سال به صورت تمام وقت
شروع برنامه	نیمسال اول
تعداد مواد درسی	۴۸ ماده درسی

## ۱.۳ فرصتهای شغلی دانش آموختگان:

فرصتهای اجتماعی و شغلی دانش آموختگان این رشته در زمینه رسانه با ارتباط دوطرفه و مدیریت فناوری عبارتند از:

صنعت تبلیغات - طراحی بسته های آموزشی- ارتقای حرفه ای- آموزش- صنایع سرگرمی آن لاین- یکپارچه سازی سیستمهای ارتباط از راه دور- شبکه های رایانه ای- شبکه های آن لاین با پهنای

باند بالا- طراحی و اجرای سیستمهای یکپارچه رایانه ای و اطلاع رسانی در شبکه های جهانی- طراحی بازی های ویدئویی

#### ۴.۱ شغل های مورد انتظار:

طراح پویانمایی- مدیر سیستمهای رایانه ای- مربی IT- طراح چندرسانه ای- مولف چندرسانه ای- کارشناس تبلیغات- مربی دانشگاه- مدیر سیستمهای اطلاع رسانی- مدیر پروژه های IT- توسعه سیستمهای چندرسانه ای- مهندس صوتی و تصویری- دستیار تولید- هنرمند دو و سه بعدی کار- بازرگان الکترونیکی- طراح سیستمهای عملکردی رایانه ای

#### ۵.۱ لیست دروس ارائه شونده:

##### بخش ۱

عنوان درس	واحد	کد درس
ارتباط دو طرفه انسان و رایانه	۲	<u>COMP۲۵</u> ۰.۶
طراحی دو طرفه	۲	<u>COMP۳۵</u> ۰.۳
پردازش اجتماعی و سیار	۲	<u>COMP۳۵</u> ۰.۵
استدیو ۱- مقدمات طراحی	۲	<u>IENV۱۰۰</u> ۰
تفکر بصری	۲	<u>IENV۱۳۰</u> ۱

<u>IENV۳۰۰</u>	۴	استدیو ۲- پردازش کالبدی
<u>IENV۳۵۰</u>	۴	استیو ۳- محیط های اطلاعاتی
<u>MMDS۱۳</u>	۲	نگارش چندرسانه ای
<u>MMDS۱۳</u>	۲	مدلسازی ۳ بعدی
<u>MMDS۱۴</u>	۲	مقدمات طراحی وب
<u>MMDS۲۲</u>	۲	طراحی گرافیکی
<u>MMDS۲۲</u>	۲	تولید ویدئو دیجیتال
<u>MMDS۲۳</u>	۲	پویانمایی پیشرفته رایانه ای
<u>MMDS۳۳</u>	۲	طراحی بازی های رایانه ای

## بخش ۲

<u>COMP۲۳۰</u>	۲	اصول شبکه و سیستمهای عامل
<u>COMP۳۵۰</u>	۲	الگوریتم ها و ساختار داده ها
<u>CSSE۱۰۰۱</u>	۲	مقدمات مهندسی نرم افزار ۱
<u>CSSE۲۰۰۲</u>	۲	برنامه نویسی در مقیاس کلان
<u>CSSE۲۰۰۳</u>	۲	استدیو مهندسی نرم افزار



<u>IENV۲۲۰۰</u>	۲	پایه های طراحی
<u>IENV۲۲۰۱</u>	۲	شیوه های چابک
<u>IENV۳۱۰۱</u>	۲	تجسم اطلاعات
<u>IENV۳۳۰۵</u>	۲	محیط های اطلاعاتی
<u>INFS۱۲۰۰</u>	۲	مقدمات سیستمهای اطلاعاتی
<u>INFS۲۲۰۰</u>	۲	سیستم های پایگاه داده مرتبط
<u>MATH۱۰۶</u> ۱	۲	ریاضیات گسسته
<u>MMDS۱۸</u> ۰.۱	۲	استدیو چندرسانه ای ۱
<u>MMDS۱۸</u> ۰.۲	۲	استدیو چندرسانه ای ۲
<u>MMDS۲۲</u> ۰.۲	۲	طراحی صوتی دیجیتالی
<u>MMDS۲۸</u> ۰.۱	۲	استدیو چندرسانه ای ۳
<u>MMDS۲۸</u> ۰.۲	۲	استدیو چندرسانه ای ۴
<u>MMDS۳۲</u> ۰.۱	۲	فعالیت حرفه ای
<u>MMDS۳۳</u> ۰.۱	۲	پردازش تاثیرگذار
<u>MMDS۳۸</u> ۰.۱	۲	پروژه چند رسانه ای ۱

## ۱.۶ شرح و سرفصل دروس :

از آنجایی که اطلاعات این بخش در گزارش نهایی این پروژه تاثیر نداشته و صرفاً جهت پردازش در فاز ۲ به کار خواهند رفت این اطلاعات به صورت زبان اصلی ارائه شده اند. جهت سهولت بررسی در فاز ۲ اطلاعات اضافی در مورد درس حذف گردیده و فقط اطلاعات ضروری در مورد تعریف سرفصل، پیش نیاز، تعداد واحد، دانشکده ارائه دهنده درس و نحوه ارزش یابی ارائه شده است.

### Human-Computer Interaction COMP<sup>۲۵۰۶</sup>

#### Course Description

Number of Units: ۲

Contact Hours: ۳ Lecture, ۱ Tutorial

Semesters Offered: Sem ۱ St Lucia & Ipswich Internal

Prerequisite CSSE<sup>۱۰۰۱</sup> or IENV<sup>۱۰۰۰</sup> or MMDS<sup>۱۴۰۰</sup>

Incompatible COMP<sup>۳۵۰۱</sup> or COMP<sup>۷۹۰۴</sup> or CS<sup>۳۴۲</sup> or ۳۴۳ or ۳۴۴

Assessment: Examination, assignment

Models of action, perception, cognition and interaction in human-machine systems. Methods of interaction analysis and interaction representation. Human-machine system evaluation. Practical implementation. Introduction to user and use-centred design principles. Broader topics may include: societal considerations, groupware, multimedia, media perspectives.

### Interaction Design COMP<sup>۳۵۰۳</sup>

#### Course Description

Number of Units: ۲

Contact Hours: ۱ Lecture, ۲ Tutorial, ۱ Practical or Laboratory

Semesters Offered: Sem ۲ Ipswich Internal

Incompatible IENV<sup>۲۳۰۲</sup> or ۷۹۳۳

Recommended Prerequisite COMP<sup>۲۵۰۶</sup>

Assessment: Design project

Design of interactions between people & their information environment. Topics include: ethnographic observation of work practice, user models, environment models, interaction models, interaction analysis, interaction representation, cognitive models, mappings, affordance multimedia, portables, ambient technology. Project-based learning.

## **Social and Mobile Computing COMP3000**

### **Course Description**

#2 (1L1P) Sem 2 St Lucia

[Recommended Prerequisite](#) COMP2006

[Recommended Companion](#) COMP3003

[Incompatible](#) IENV3801

Assessment: TBA

Topics in social computing - groupware, social software, computer supported cooperative work. Considerations in the design of mobile and ubiquitous computing systems: mobility research; distributed user research; multi-player environments; tangible; physical and wearable computing.

## **Studio I - Introduction to Design IENV1000**

### **Course Description**

#2 (1L1P) Sem 2 Ipswich Internal

Coordinator: TBA

## **Visual Thinking IENV1301**

### **Course Description**

Number of Units: 2

Contact Hours: 1 Lecture, 1 Tutorial, 2 Practical or Laboratory

Semesters Offered: Sem 1 Ipswich Internal

[Incompatible](#) IENV9913 or IV113

Assessment: Assignments & examinations

Essential design skills exercised through solving design problems. Emphasis on quickly executed sketches, diagrams, storyboards, working physical prototypes. Design form, function, useability. Exercises to develop fluent & flexible idea production. Evaluation of products in use. Need finding.

### **1. General Course Information**

#### **1.1 Course Details**

**Course Code:** IENV1301 **Course Title:** Visual Thinking

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 1L1T2P

**Incompatible:** IENV9913 or IV113

**Course Description:** Essential design skills exercised through solving design problems. Emphasis on quickly executed sketches, diagrams, storyboards, working physical prototypes. Design form, function, useability. Exercises to develop fluent & flexible idea production. Evaluation of products in use. Need finding.

### 1.2 Course Introduction

Visual Thinking is designed to give students an introduction to the use of visual methods within the design process. Skills and knowledge are introduced progressively to allow opportunity for students to continue applying and developing skills learnt in earlier work.

The focus of practical classes is learning and practicing drawing. *The New Drawing on the Right Side of the Brain* written by Betty Edwards provides guided practice in basic skills of drawing. Drawing skills are applied to project work throughout the Visual Thinking course.

*Project 1: Idea generation and Parallel Thinking* introduces students to brainstorming with creative thinking, and parallel thinking using Edward De Bono's Six Thinking Hats. Thinking techniques learnt in *Project 1* are exercised and expanded in later Visual Thinking projects.

*Project 2: Derby, Derby, Derby* introduces students to physical prototyping and working within the constraints of a design brief. Thinking techniques learnt in *project 1* will be exercised to generate and evolve unique ideas and design solutions. Drawing skills developing in practical sessions will be exercised to record, refine and communicate ideas and solutions.

*Project 3: Problems and Solutions* applies knowledge and skills learnt in previous projects including brainstorming, Edward De Bono's Six Thinking Hats, sketching and physical prototyping.

*Project 4* introduces concept mapping, synetics, storyboarding and scale orthographic drawings (optional).

## Studio II - Physical Computing IENV2000

### Course Description

Number of Units: 4

Contact Hours: 10 [Class Contact](#)

Semesters Offered: Sem 1 Ipswich Internal

[Prerequisite](#) COMP2006

[Recommended Prerequisite](#) IENV1000

[Incompatible](#) IENV2802, IENV3800

Assessment: Projects, assignments

Studio-based projects of intermediate & advanced scale & complexity, including seminars & critiques. Exploration of integration of all major information environment determinants. Final

project will require comprehensive design resolution including preliminary technical documentation. Involves both group & individual work. The focus of this studio is Physical Computing.

### **Studio III - Information Environments IENV<sup>2000</sup>**

- **Course Description**

Number of Units: 4

Contact Hours: 10 [Class Contact](#)

[Prerequisite](#) COMP<sup>2006</sup>

[Recommended Prerequisite](#) IENV<sup>1000</sup>

Assessment: Projects, assignments

Studio-based projects of intermediate & advanced scale & complexity, including seminars & critiques. Exploration of integration of all major information environment determinants. Final project will require comprehensive design resolution including preliminary technical documentation. Involves both group & individual work. The focus of this studio is Information Environments.

### **Multimedia Authoring MMDS<sup>1301</sup>**

#### **Course Description**

Number of Units: 2

Contact Hours: 2 Lecture, 1 Tutorial, 2 Practical or Laboratory

Semesters Offered: Sem 2 Ipswich, Internal.

Assessment: Assignments

Interactive information architectures; communication; multimedia integration issues; multimedia library sources; basic & intermediate authoring techniques; basic issues of interface usability; principles of multimedia design

#### **1. General Course Information**

##### **1.1 Course Details**

**Course Code:** MMDS<sup>1301</sup> **Course Title:** Multimedia Authoring

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 2L1T2P

**Course Description:** Interactive information architectures; communication; multimedia integration issues; multimedia library sources; basic & intermediate authoring techniques; basic issues of interface usability; principles of multimedia design

**Assumed Background:** There is no background assumed for this course, but familiarity with HTML, CSS and JavaScript is recommended.

## 1.2 Course Introduction

This course introduces Macromedia Director and Flash. Students will become proficient in using these environments to produce applications with interactive elements including animations, sounds, video, buttons, menus etc. Students will leverage knowledge of Cascading Style Sheets (CSS) and JavaScript.

## 2-D Modeling MMDS1311

- **Course Description**

Number of Units: 2

Contact Hours: 1 Lecture, 2 Practical or Laboratory

Assessment: Assignments

Tools, techniques & processes involved in 2-D computer design, modelling, rendering & animation & their application to the field of multimedia production.

## Graphic Design MMDS2200

### Course Description

Number of Units: 2

Contact Hours: 1 Lecture, 4 [Class Contact](#)

Semesters Offered: Sem 1 Ipswich Internal

[Prerequisite](#) IENV1301 + (MMDS1801 or IENV1801)

[Incompatible](#) IENV9662

Assessment: Design Projects

Design practice in light of background of shifting production languages, convergent technologies & professional design contexts. Fundamental graphic applications for print technologies & principles of print, page anatomy & construction, design production literacies & requirements for application to screen design. Role of process in design & roles & responsibilities inherent in design production processes.

## 1. General Course Information

### 1.1 Course Details

**Course Code:** MMDS2200 **Course Title:** Graphic Design

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 1L4C

**Pre-Requisites:** IENV1301 + (MMDS1801 or IENV1801)

**Incompatible:** IENV9662

**Course Description:** Design practice in light of background of shifting production languages, convergent technologies & professional design contexts. Fundamental graphic applications for print technologies & principles of print, page anatomy & construction, design production literacies & requirements for application to screen design. Role of process in design & roles & responsibilities inherent in design production processes.

**Assumed Background:** Visual Thinking (IENV1201) and Studio One (IENV1801/MMDS1801) form the bulk of the assumed background for this course.

### 1.2 Course Introduction

In this course students will be introduced to fundamental visual design skills and concepts, alongside design production literacy's. These visual literacy's are designed to build upon the existing skills from Visual Thinking. Students will engage in critical analysis of content to be communicated and in practical exploration of content structure, information architecture and layout. Emphasis will be placed on understanding the role of process in the design and production contexts, (including screen design) and a broader understanding of the roles and responsibilities inherent in production processes. Design situations are examined in light of the background of shifting production languages, convergent technologies and professional contexts.

Design practice is examined in light of the background of shifting production languages, convergent technologies and professional design contexts. Fundamental graphic applications for print technologies and principles of print, page anatomy and construction will be addressed alongside design production literacy's and requirements for application to screen design. An understanding of the role of process in design and a broader knowledge of roles and responsibilities inherent in design production processes will be explored.

Students will be introduced to a range of approaches to visual communication and design methods based on an understanding of design as a cultural practice. They develop an understanding of graphic design as a process of synthesising selected information into a visual form. They are introduced to the structural dynamics of visual relationships in page layout, colour and typography. They are encouraged to explore a range of graphic techniques and processes.

## **Introduction to Web Design MMDS1400**

### **Course Description**

Number of Units: 2

Contact Hours: 1 Lecture, 4 [Class Contact](#)

Assessment: Assignments, exam

Introduces programming to visually-focused students using scripting languages, within an exploratory problem-based learning approach. Basic programming constructs; solving problems by building abstractions; practical exercises involving automating repetitive tasks, composing computational objects & embedding. Broad understanding of programming for future professional work in multi-disciplinary team-based environments.

### **1. General Course Information**

UQ students: If you are enrolled in this course, please sign in to [mySI-net](#) to view your list of enrolled courses and click the relevant **Profile** link to view the full course contributor and contact details contained in section 1.2 below.

#### **1.1 Course Details**

**Course Code:** MMDS1400 **Course Title:** Introduction to Web Design

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 1L4C

**Incompatible:** IENV7961

**Course Description:** Introduces programming to visually-focused students using scripting languages, within an exploratory problem-based learning approach. Basic programming constructs; solving problems by building abstractions; practical exercises involving automating repetitive tasks, composing computational objects & embedding. Broad understanding of programming for future professional work in multi-disciplinary team-based environments.

#### **1.2 Course Introduction**

This course introduces students to the principles and practice of designing and authoring for the World Wide Web (WWW) using HyperText Markup Language (HTML), Cascading Style Sheets (CSS) and JavaScript.

## **Digital Video Production MMDS2201**

### **Course Description**

Number of Units: 2

Contact Hours: 2 Lecture, 1 Tutorial, 2 Practical or Laboratory

Assessment: Assignments

A series of lectures and practical sessions designed to familiarise



the student with the theory, practice and implementation of a range of software skills and methodologies in the areas of image manipulation, audio and video editing and compositing.

## **Advanced Computer Animation MMDS2311**

### **Course Description**

Number of Units: 2

Contact Hours: 1 Lecture, 2 Practical or Laboratory

Semesters Offered: Sem 1 Ipswich Internal

[Prerequisite](#) MMDS1311

Assessment: Project Based

Theory, practice and implementation of a range of software skills and methodologies in the areas 2D & 3D computer animation.

## **Games Design MMDS3300**

### **Course Description**

Number of Units: 2

Contact Hours: 1 Lecture, 4 [Class Contact](#)

Semesters Offered: Sem 2 Ipswich Internal

Coordinator: Dr Erik Champion (erikc@itee.uq.edu.au)

Assessment: Project Based

In-depth exploration of design of computer games including social, emotional, psychological, technical & theoretical issues. History of games, games analysis, game design process, level design, sound design, graphical design, character design, interface design, game balance, & interactive storytelling.

### **1. General Course Information**

#### **1.1 Course Details**

**Course Code:** MMDS3300 **Course Title:** Games Design

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 1L4C

**Pre-Requisites:** (COMP1000 or CSSE1001 or MMDS1400) + MMDS2200

**Incompatible:** IENV7963

**Course Description:** In-depth exploration of design of computer games including social, emotional, psychological, technical & theoretical issues. History of games, games analysis, game design process, level design, sound design, graphical design, character design, interface design, game balance, & interactive storytelling.

**Assumed Background:** Note that students for this course should have already completed COMP1000 or CSSE1001 or MMDS1400, and have also already completed MMDS2200.

It is also advisable that students have an interest in games and games design, but they will have an opportunity to build up their games knowledge during the course.

### 1.2 Course Introduction

MMDS2300 is an introduction to the critical and practical issues of understanding, creating, and critiquing games. MMDS2300 is designed to give students an insight into the game design and development process as well as experience applying theoretical knowledge to a practical exercise in game development.

## Network & Operating Systems Principles COMP2303

### Course Description

Number of Units: 2

Contact Hours: 2 Lecture, 2 Practical or Laboratory

Semesters Offered: Sem 1 St Lucia Internal

Assessment: Assignments, examination

Operating Systems Principles: memory management, basics of machine organization, file systems, processes & threads, interprocess communication. Computer Networks Principles: topologies & models of computer networks, protocols, network programming, network applications. Systems Programming in C.

## 1. General Course Information

### 1.1 Course Details

**Course Code:** COMP2303 **Course Title:** Network & Operating Systems Principles

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 2L2P

**Pre-Requisites:** COMP1000 or 2304 or CSSE1001

**Incompatible:** COMP2300 or COMP2303 or COMP2306

**Course Description:** Operating Systems Principles: memory management, basics of machine organization, file systems, processes & threads, interprocess communication. Computer Networks Principles: topologies & models of computer networks, protocols, network programming, network applications. Systems Programming in C.

**Assumed Background:** Students are assumed to have successfully completed an introductory programming course such as CSSE1001, COMP1000, COMP1002, COMP2901 or CSSE2030. Strong programming skills (in any language) will be an advantage. It is also advantageous, but not required, to have some basic knowledge of computer

systems and prior exposure to the C programming language such as that from CSSE1000, COMP1300, COMP2300 or COMP2302.

### 1.2 Course Introduction

COMP2302 is an introduction to the principles of computer systems (networks and operating systems) and systems programming in C.

## Algorithms & Data Structures COMP2506

### Course Description

Number of Units: 2

Contact Hours: 3 Lecture, 1 Tutorial

[Prerequisite](#) CSSE2002, MATH1061

[Incompatible](#) COMP2502 or COMP7500 or CS210 or 219 or 282

Assessment: Examination, assignment

Data structures & types, mapping of abstract information structures into representations on primary & secondary storage. Analysis of time & space complexity of algorithms. Sequences. Lists. Stacks. Queues. Sets, multisets, tables. Trees. Sorting. Hash tables. Priority queues. Graphs. String algorithms.

## Introduction to Software Engineering I CSSE1001

### Course Description

Number of Units: 2

Contact Hours: 2 Lecture, 3 Practical or Laboratory

[Incompatible](#) COMP1502 or CSSE7030

Assessment: Assignments, online problems, examination

Introduction to Software Engineering through programming with particular focus on the fundamentals of computing & programming, using an exploratory problem-based approach. Building abstractions with procedures, data & objects; data modelling; designing, coding & debugging programs of increasing complexity

## 1. General Course Information

### 1.1 Course Details

**Course Code:** CSSE1001 **Course Title:** Introduction to Software Engineering I

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 2L2P

**Incompatible:** COMP1502 or CSSE7030

**Course Description:** Introduction to Software Engineering through programming with particular focus on the fundamentals of computing & programming, using an exploratory problem-based approach. Building abstractions with procedures, data & objects; data modelling; designing, coding & debugging programs of increasing complexity

### 1.2 Course Introduction

CSSE1001 introduces fundamental concepts in software engineering, using the Scheme programming language. Emphasis is placed on problem solving using computational techniques, creating algorithms and designing and manipulating data structures.

### Programming in the Large CSSE2002

#### Course Description

Number of Units: 2

Contact Hours: 2 Lecture, 1 Practical or Laboratory, 1 Practical or Laboratory

Semesters Offered: Sem 1 or 2 St Lucia Internal

Prerequisite COMP1000 or CS129 or 181 or CSSE1001

Incompatible CS207 or 209 or 280 or COMP2000 or 2908 or CSSE2023

Assessment: Examinations, assignments, tutorials & practical problems

Object-oriented programming. Procedural, data and iteration abstraction, specification and testing. Type hierarchies and polymorphism. Exception handling, file I/O, graphical user interfaces.

## 1. General Course Information

### 1.1 Course Details

**Course Code:** CSSE2002 **Course Title:** Programming in the Large

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 2L2P

**Pre-Requisites:** COMP1000 or CS129 or 181 or CSSE1001

**Incompatible:** CS207 or 209 or 280 or COMP2000 or 2908 or CSSE2023

**Course Description:** Object-oriented programming. Procedural, data and iteration abstraction, specification and testing. Type hierarchies and polymorphism. Exception handling, file I/O, graphical user interfaces.

#### Assumed Background:

You are expected to have successfully completed at least one programming course in a modern programming language, and be

familiar with programming constructs such as functions/procedures/methods and variables.

## **Software Engineering Studio CSSE2002**

### **Course Description**

Number of Units: 2

Contact Hours: 2 Lecture, 2 Tutorial

Semesters Offered: Sem 2 St Lucia Internal

[Prerequisite](#) COMP2000 or CSSE2002

[Incompatible](#) COMP2001 or 2801

Assessment: Studio projects & final examination

Programming studio projects in small teams; project & team management; software maintenance; software & project documentation; software design, architecture & patterns; configuration management; software components; case tools; advanced programming.

## **1. General Course Information**

### **1.1 Course Details**

**Course Code:** CSSE2002 **Course Title:** Software Engineering Studio

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 2L2T

**Pre-Requisites:** COMP2000 or CSSE2002

**Incompatible:** COMP2001 or 2801

**Course Description:** Programming studio projects in small teams; project & team management; software maintenance; software & project documentation; software design, architecture & patterns; configuration management; software components; case tools; advanced programming.

**Assumed Background:** Students are expected to have:

- experience programming in Java
- Unix and X11 user skills
- some knowledge of unit testing of individual Java classes

### **1.2 Course Introduction**

Software design is the stage of software development that transforms a specification (formal or informal) into a structure suitable for implementation. The design process starts with an abstract description of the required software and creates a plan for a potential implementation that meets the initial requirements.

As we increase the size and complexity of the problems we attempt,

so the importance of the design process increases. There are many software design methods, just as there are many programming languages. One goal of this course is for you to appreciate the role of a design method in the design process and to develop the skills necessary to learn new design methods in the future. This course will introduce you to the concepts of software architecture and design patterns.

Testing has a vital role in developing software. It is a practical means of detecting errors that can be highly effective if performed rigorously. Despite the major limitation of testing: "Program testing can be used to show the presence of bugs, but never to show their absence!" [E. Dijkstra, Structured Programming, page 6, 1972], it is an essential verification and validation technique. In this course, you should learn some basic techniques for software testing and have some experience applying them.

## **Foundations of Design IENV2200**

### **Course Description**

Number of Units: 2

Contact Hours: 0 [Class Contact](#)

Assessment: Examination, assignments, participation

To introduce students to the theory and history of design as context for the development of their own design practice.

## **Agile Methods IENV2201**

**Attention:** This course is not currently offered, please contact the school

### **Course Description**

Number of Units: 2

Contact Hours: 2 Lecture, 1 Tutorial, 2 Practical or Laboratory

Semesters Offered: Sem 1 Ipswich Internal (offered in even numbered years only)

[Prerequisite](#) (IENV2201 or IV112) + (IENV1802 or IV121)

[Incompatible](#) IENV2222 or IV212

Introduction to professional issues in information environments: client briefs, requirement analysis, systems design & development approaches, user-participatory design & workplace studies.

Introduction to, & experience with, software tools supporting design, project management & revision control.

## **Information Visualisation IENV3101**

**Attention:** This course is not currently offered, please contact the school

### **Course Description**

Number of Units: 2

Contact Hours: 1 Lecture, 1 Practical or Laboratory

Assessment: Project based.

Design responses to, and the use of visualisation tools for representing Social and Economic Statistics as well as mapping space, architecture and travel over distances. Visualisation principles and tools. Information visualisation and representation methods and the roles of colour, animation, artefacts and interactive 3D environments.

#### **1.1 Course Details**

**Course Code:** IENV3101 **Course Title:** Information Visualisation

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 1L1P

**Pre-Requisites:** COMP3001 or CS344

**Incompatible:** IV313

**Course Description:** Design responses to, and the use of visualisation tools for representing Social and Economic Statistics as well as mapping space, architecture and travel over distances. Visualisation principles and tools. Information visualisation and representation methods and the roles of colour, animation, artefacts and interactive 3D environments.

**Assumed Background:** Students should have skills consistent with having successfully undertaken IENV1301 (Visual Thinking), and be familiar with using Macromedia Director or alternate interactive/mark up tools.

#### **1.2 Course Introduction**

Information Visualisation is designed to give students a basic understanding of the visualisation of information: its principles, methods, and applications.

It is expected that upon successful completion of the course, students will:

- \* understand the theoretical underpinnings of information visualisation
- \* demonstrate the critical assessment of information visualisations
- \* demonstrate facility with the design of information visualisations
- \* be able to identify and organize information through the

employment of a of methods

## **Virtual Environments IENV3300**

### **Course Description**

Number of Units: 2

Contact Hours: 4 [Class Contact](#)

[Prerequisite](#) COMP1000 or CSSE1001 or MMDS1400

Assessment: Assignments, Design projects

Fundamentals of 3D visualization & 3D data structures. Introduction to Geographical Information Systems & their use to manage multi-media information, methods & technologies to generate Virtual Environments. Issues in interaction, navigation of Virtual Environments, implications for design. Physical environmental effects and explores concepts in Augmented Reality.

### **1. General Course Information**

#### **1.1 Course Details**

**Course Code:** IENV3300 **Course Title:** Virtual Environments

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 4C

**Pre-Requisites:** COMP1000 or CSSE1001 or MMDS1400

**Course Description:** Fundamentals of 3D visualization & 3D data structures. Introduction to Geographical Information Systems & their use to manage multi-media information, methods & technologies to generate Virtual Environments. Issues in interaction, navigation of Virtual Environments, implications for design. Physical environmental effects and explores concepts in Augmented Reality.

#### **1.2 Course Introduction**

Introduction What is a virtual environment? With few material possessions and no written language, Australian aborigines have held memories in a virtual space for millennia. They describe this space through abstract dot paintings, dance and song. They impart their subconscious ethereal landscapes by projecting them onto the physical world; the ancient Greeks had a world which included Olympian gods; the Christian medievals had Dante's world of the soul; and so on. In other words, humans have been living with multileveled spatial realities since earliest recorded history and most likely, before. Hence we might say the 'real' question is "what is spatial reality?" There are many examples of modern versions of what could be called 'virtualities': 3D animation, (physically impossible) special effects, real-time 3D computer games and so on. We have come to rely on virtual environments as a new type of spatial reality in weather modelling, radar mapping, flight simulation, and so on. In this course you will be exposed to a range



of these emergent technologies and develop new uses for them. Along the way you will be able to question why we use them and how they could be better used. Cyberspace itself is often thought of as a virtual reality. But it only takes on a 3D form when we choose to represent it that way. As the modern equivalent of the Aboriginal dreamtime, Greek Agora, or Dante's religious ascension/descension worlds, how we can best understand and represent the non-space of cyberspace is open to debate. In virtual environments 3D is only one of the options we will explore.

## **Introduction to Information Systems INFS1200**

### **Course Description**

Number of Units: 2

Contact Hours: 2 Lecture, 1 Tutorial, 1 Practical or Laboratory

Semesters Offered: Sem 1 or 2 St Lucia Internal.

Assessment: Mid-semester & final examination; assignments.

Introduction to information systems concepts, relational database systems, querying simple databases, data analysis & design, building simple information system based on current relational technology.

### **1. General Course Information**

#### **1.1 Course Details**

**Course Code:** INFS1200 **Course Title:** Introduction to Information Systems

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 2L1T1P

**Pre-Requisites:** MATH1040 or MT140

**Incompatible:** CS114 or CS116 or CS182 or INFS7900

**Course Description:** Introduction to information systems concepts, relational database systems, querying simple databases, data analysis & design, building simple information system based on current relational technology.

**Assumed Background:** Senior Math B or MT 140. Basic set theory is useful. No computer programming experience is assumed.

#### **1.2 Course Introduction**

This course introduces the student to the area of computer-based information systems. It includes basic concepts necessary to correctly design, and implement, a small information system. The course will prepare students to deploy small information systems in industry and will also prepare them for further study of advanced information system concepts taught later in the program.

## **Relational Database Systems INFS2200**

### **Course Description**

Number of Units: 2

Contact Hours: 3 Lecture, 1 Tutorial, 1 Practical or Laboratory

Prerequisite (INFS1200 or CO260 or BSIS2203 or COMM2600 or CS182 or MGTS2203) + (MATH1061 or MT161)

Incompatible CO260 or BSIS2206 or COMM2600 or CS213 or CS214 or CS216 or CS217 or CS271 or INFS2903 or MGTS2206.

Assessment: Examination & assignments.

Concepts needed to build large information system using current technology; relational & other data models, query processing & views, index structures for access, dataflow & dynamic models.

### **1. General Course Information**

#### **1.1 Course Details**

**Course Code:** INFS2200 **Course Title:** Relational Database Systems

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 2L1T1P

**Pre-Requisites:** (INFS1200 or CO260 or BSIS2203 or COMM2600 or CS182 or MGTS2203) + (MATH1061 or MT161)

**Incompatible:** CO260 or BSIS2206 or COMM2600 or CS213 or CS214 or CS216 or CS217 or CS271 or INFS2903 or MGTS2206.

**Course Description:** Concepts needed to build large information system using current technology; relational & other data models, query processing & views, index structures for access, dataflow & dynamic models.

#### **Assumed Background:**

Students are assumed to have knowledge covered in INFS1200/INFS2900 Information Systems and MATH1061 Discrete Mathematics. Particularly, the students should have learned the following:

1. Concepts about conceptual modelling (e.g., ER Modelling)
2. Concepts of modelling data processes such as Data Flow Diagrams.
3. Database concepts and Relational Tables (primary key, candidate key, foreign key, etc)
4. ER to Relational database tables mapping
5. SQL queries
6. FD (Functional Dependency) Theory and Normalization process of 1-4 NFs.
7. Concepts of data structures: Array, Record, Tree, Graph, etc.

- 8. Basic design methodologies such as top-down or bottom-up.
- 9. Software engineering concepts about design, specification, implementation, coding, debugging, etc.
- 10. Concepts about data types: text, character, numeric, integer, etc.
- 11. Concepts of set theory, propositional logic and predicate calculus.
- 12. Programming concepts about procedures, variables, algorithm design, etc.
- 13. Fundamental knowledge about computer systems: Operating System, Memory management, File Directory management, etc.

### 1.2 Course Introduction

The focus of this course is on taking the relational database design and query construction from INFS1200 further towards development of a full relational database system. Project based design and related types of abstraction are introduced. Fundamental mechanisms for security, performance and the related issues, are taught. The course also introduces the database management system algorithms used to manage transactions, process and optimise queries, and shows how different indexing techniques are affected by design choices.

## Discrete Mathematics MATH1061

### Course Description

Number of Units: 2

Contact Hours: 2 Lecture, 1 Tutorial, 1 [Class Contact](#)

[Incompatible](#) MATH1861 or ME108 or MT108 or 109 or 161

Assessment: Assignments & Examinations

Propositional & predicate logic, valid arguments. Elementary set theory. Elementary graph theory. Relations & functions, categories. Induction & recursive definitions. Counting methods (pigeonhole, inclusion/exclusion). Introductory probability. Binary operations, semi-groups, groups, fields. Applications of finite fields. Elementary number theory.

### 1. General Course Information

#### 1.1 Course Details

**Course Code:** MATH1061 **Course Title:** Discrete Mathematics

**Coordinating Unit:** School of Physical Sciences

**Number of Units:** 2 **Contact Hours Per Week:** 2L1T1C

**Incompatible:** MATH1861 or ME108 or MT108 or 109 or 161

**Course Description:** Propositional & predicate logic, valid arguments. Elementary set theory. Elementary graph theory. Relations & functions, categories. Induction & recursive definitions.

Counting methods (pigeonhole, inclusion/exclusion). Introductory probability. Binary operations, semi-groups, groups, fields. Applications of finite fields. Elementary number theory.

## 1.2 Course Introduction

### **Multimedia Studio 1 MMDS1801**

#### **Course Description**

Number of Units: 2

Contact Hours: 1 Lecture, 3 Tutorial, 2 Practical or Laboratory

Semesters Offered: Sem 1 Ipswich Internal (offered in even numbered years only)

[Prerequisite](#) Permission of Program Coordinator for non MMDS students

Assessment: assignments, project work

Studio based projects, seminars & critiques, exploring the nature of multimedia design & introduce essential communication skills. Projects involve imaginative perception, creative idea generation & evaluation. Practical skills development in two dimensional image creation & manipulation.

## 1. General Course Information

### 1.1 Course Details

**Course Code:** MMDS1801 **Course Title:** Multimedia Studio 1

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 1L3T2P

**Pre-Requisites:** Permission of Program Coordinator for non MMDS students

**Course Description:** Studio based projects, seminars & critiques, exploring the nature of multimedia design & introduce essential communication skills. Projects involve imaginative perception, creative idea generation & evaluation. Practical skills development in two dimensional image creation & manipulation.

**Assumed Background:** There is no assumed knowledge for this course. It would be beneficial for students to be enrolled in visual thinking in the same semester as taking this course. It would also be beneficial for students to undertake dynamic web authoring in the same semester, though supporting material shall be provided to bridge this gap, if required.

### 1.2 Course Introduction

Good design is a challenging problem. On the outset, it may appear as though there is no clear path to a solution. Influences during the design process are not always evident. How do you approach a problem when the direction in which to travel is unclear?

The Introduction to Studio course, aims to present the nature of design to students in the context of Interaction and Multimedia Design. The role of the design process and how the aspects of design can inform your process are addressed through this course. The aim is to give students an insight into the nature of the design process and how to move forward from a challenging problem towards an elegant design solution.

## **Digital Audio Production MMDS22.2**

### **Course Description**

Number of Units: 2

Contact Hours: 2 Lecture, 2 Practical or Laboratory

MMDS22.1

Assessment: Assignments, Exam

An advanced series of lectures and practical sessions designed to expand the students' knowledge of the theory, practice and implementation of a range of software skills and methodologies in the areas of sound design, and audio capture and manipulation, for various forms of media.

### **1. General Course Information**

#### **1.1 Course Details**

**Course Code:** MMDS22.2 **Course Title:** Digital Audio Production

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 2L1T2P

**Pre-Requisites:** MMDS22.1

**Course Description:** An advanced series of lectures and practical sessions designed to expand the student's knowledge of the theory, practice and implementation of a range of software skills and methodologies in the areas of image manipulation, audio and video editing and compositing.

**Assumed Background:** Familiarity with video editing tools.

#### **1.2 Course Introduction**

This course introduces the impact of audio as a mechanism to convey narrative, and teaches methodologies and skills for the design and implementation of audio to stand alone, or complement various forms of media.

## **Multimedia Studio 2 MMDS28.1**

### **Course Description**

Number of Units: 2

Contact Hours: 1 Lecture, 4 Practical or Laboratory

[Recommended Prerequisite](#) MMDS18.1 + MMDS18.2

Assessment: Project based

Design of multimedia environments: studio-based projects, seminars and critiques. Students deal with the exploration of multimedia through initial design concepts, focusing on interpretation of context and technology. Students integrate existing skills and knowledge in multimedia, incorporating exploration and conceptual analysis of multimedia foundations and background.

## 1. General Course Information

### 1.1 Course Details

**Course Code:** MMDS2801 **Course Title:** Multimedia Studio 2

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 2 **Contact Hours Per Week:** 1L&P

**Recommended Pre-Requisites:** MMDS1801 + MMDS1802

**Course Description:** Design of multimedia environments: studio-based projects, seminars and critiques. Students deal with the exploration of multimedia through initial design concepts, focusing on interpretation of context and technology. Students integrate existing skills and knowledge in multimedia, incorporating exploration and conceptual analysis of multimedia foundations and background.

**Assumed Background:** MMDS1802 or IENV1802

Students are expected to be able to

- rapidly sketch ideas for design development, communication and evaluation
- manipulate physical and digital materials to create prototypes or partial implementations
- use labs, networks and software at UQ Ipswich

### 1.2 Course Introduction

Design of locative interactive environments : studio-based projects, seminars, practical skill sessions and critiques. The course includes an Effective Communication Module. Students explore locative media through initial design concepts, focusing on interpretation of context and technology, as well as prototype implementations. Group and Individual Work

## Professional Practice MMDS2201

### Course Description

Number of Units: 2

Contact Hours: 4

[Prerequisite](#) MMDS2802 or IENV2802

Assessment: Project Based

Range of professional issues related to design oriented Information Technology careers. Ethics, copyright, small business management, interdisciplinary team management, oral & written presentation skills, and general project management skills.

### **Affective Computing MMDS<sup>33.1</sup>**

#### **Course Description**

Number of Units: 3

Contact Hours: 1 Lecture, 4 Practical or Laboratory

Assessment: Two assignments and a final presentation

The course familiarises students with the concept of affective design & explores the idea of extending and supplementing usability by looking beyond functionality and performance to affect. Students consider advantages of taking into account users' emotional states & likely impacts of certain interface characteristics on mood and emotions. Attention then focuses on the media equation (the tendency to treat computers like real people/places) & different implications for affective design, with particular reference to computer game design, e-Learning, e-Health, e-Commerce etc.

### **Multimedia Project I MMDS<sup>28.1</sup>**

#### **Course Description**

Number of Units: 3

Contact Hours: 0 [Class Contact](#)

Assessment: Project Based and Portfolio

Studio based projects of intermediate & advanced scale & complexity, including seminars & critiques. Exploration of the integration of all major multimedia determinants. Comprehensive design resolution including preliminary technical documentation. Group and individual work.

#### **1. General Course Information**

##### **1.1 Course Details**

**Course Code:** MMDS<sup>28.1</sup> **Course Title:** Multimedia Project I

**Coordinating Unit:** School of Information Technology and Electrical Engineering

**Number of Units:** 3 **Contact Hours Per Week:** 0C

**Pre-Requisites:** MMDS<sup>28.2</sup>

**Incompatible:** MMDS<sup>28.11</sup>

**Course Description:** Studio based projects of intermediate & advanced scale & complexity, including seminars & critiques. Exploration of the integration of all major multimedia determinants. Comprehensive design resolution including preliminary technical documentation. Group and individual work.

**Assumed Background:** Students are assumed to have successfully completed studios 1 through 4 prior to taking this course.

### 1.2 Course Introduction

This is the course profile for the combined third year semester 1 studio course for multimedia design and interaction design degrees. The course enables students to undertake *either* a team-based project *or* an individual project as part of a group of projects related by topic. Project topics will vary across the whole of multimedia and interaction design according to the research interests of academic staff. Students must select from the list of suggested project topics provided by Academics in the Information Environments Program. Students are expected to apply the skills and knowledge that they have gained so far throughout their studies to individual and collaborative work on their chosen project. The main learning goals for this course are to consolidate existing studio/project skills, and to augment them with research skills which focus on relating work to the current state of the art in the field, taking a holistic view of the subject matter, and critically assessing the work against criteria.



## ۲ شرح اجمالی برنامه مورد اجرا در آکادمی هنر امریکا:

### ۲.۱ کارشناسی رسانه جدید:

#### ۲.۱.۱ اصول اولیه در آکادمی:

رسانه های جدید طرفندهای صرف جهت ایجاد جلوه های بصری جهت فریب بیننده نیستند. اینها زبانهای جدید و قدرت منحصر به فرد بیان می باشند. در دنیای امروز پردازشگرها، برنامه های رایانه ای، حافظه های دیجیتالی، بیت ها، بایت ها خالق آثار بدیع نمی باشند. خالقان واقعی این آثار شما هستید. معلمان آکادمی هنرهای رایانه ای و رسانه جدید را دریابید. آنها به شما یاد خواهند داد تا با استفاده از قدرت فناوری دیجیتالی قوه تخیل خود را از قیدها و بندها رها ساخته، انعطاف پذیری لازم جهت فهم آینده را کسب نموده و واقعیتهای صنعتی را که با آن زندگی خود را می سازید دریابید. در این دانشکده شما نیز مانند هر اطلاع رسان دیگری کار خود را با آموختن پایه و اساس شروع خواهید نمود. یعنی ابتدا ترسیم، پرسپکتیو، رنگ و طراحی را خواهید آموخت. پس از آن خواهید آموخت فکر کنید، تجسم کنید، تخیل نمایید و جلوه های بدیعی از آثاری که قبلاً دست نیافتنی بودند خلق نمایید. شما می توانید طراحی یک وب سایت یا یک مجله را طوری انجام دهید که قبلاً نبود. و یا دو پویا نمایی یکی ۲ بعدی و دیگری سه بعدی را به شکلی با یکدیگر ترکیب نمایید که باعث ایجاد حیرت و شگفتی در بیننده گردد. شما می توانید با طراحی بدیع یک بازی ویدئویی تجسم و تخیل و با ساخت یک فیلم و ایجاد جلوه های ویژه احساسات مخاطب خود را برانگیزید. هنرهای دیجیتالی می توانند روح انسان را تغذیه نمایند. شما می توانید هنر فردا را بسازید. آیا آماده هستید؟

### ۲.۲ برنامه های ارائه شونده:

در این دانشکده در برنامه مجزا ارائه می گردد:

- ۱- هنر دیجیتالی و فن آوری ارتباطات
- ۲- هنرهای رایانه ای

دانش آموختگان گروه ۱ در زمینه مطالعات در مورد سودمندی اینترنت و محصولات با ارتباط دوطرفه متخصص می گردند. اساس کار بر مبنای طراحی سنتی بوده و رنگها با استفاده از تکنیکهای رسانه دیجیتال تولید می گردند. در این برنامه تاکید بر روی توسعه طراحی قاب های سیمی، امتحان کاربر، ایجاد پروتوتایپ و توسعه اشخاص می باشد.

برنامه درسی شامل کدنویسی برای توسعه اینترنت طرف کاربر و رایانه خادم بوده کدهای پویانمایی با ارتباط دو طرفه از قبیل فلش و اکش اسکریپت را در بر می گیرد.

هنر های رایانه ای و رسانه جدید، دانشجویان دوره کارشناسی را با طراحی گرافیکی، صنعت اینترنت، گرافیک متحرک و بسته بندی آشنا می نماید. این برنامه برای طالبان دانش عمومی حرفه طراحی رسانه دیجیتال مناسب می باشد. هدف این برنامه ایجاد ابزاری برای ارائه یک درک همه جانبه و میان رشته ای برای دانشجویان در زمینه هنر دیجیتالی، طراحی و تولید می باشد. تاکید این برنامه بر روی آموزش طراحی و استانداردهای صنعتی استفاده از ابزارهایی است که دانشجویان را قادر می سازد وجه های شغلی دنیای واقعی را کسب نمایند. این برنامه توانمندی های شغلی طراحی محصولات چند رسانه ای با ارتباط دوطرفه، طراحی گرافیک، طراحی وب، ساخت گرافیک متحرک، ایجاد صوت و تصویر و خلق تصاویر تخیلی را به دانشجویان می بخشد.

### **۲.۳ شغل های مناسب دانش آموختگان:**

طراح صفحات دو طرفه وب، متخصص طراحی تصاویر هنری، کارگردان هنری، تولید و چاپ کننده آثار گرافیکی، طراح تصاویر متحرک، طراح محصولات صوتی و تصویری، کارگردان فعالیتهای خلق آثار هنری بدیع

۲.۴ لیست دروس ارائه شونده: (این دوره به صورت کارشناسی  
 ارشد پیوسته ارائه می شود واحدهای ارشد با MS مشخص شده اند.)

هنرهای رایانه ای			
کد درس	عنوان درس		پیش نیاز درس
CANM ۱۰۰.OL	مقدمات رایانه		no prerequisites
CANM ۱۰۵.OL	فناوری طراحی		CANM ۱۱۰ concurrently
CANM ۱۱۰.OL	مفهوم، طراحی و فرایند		CANM ۱۰۵ concurrently
CANM ۱۲۰.OL	طراحی دو طرفه		CANM ۱۰۵, CANM ۱۱۰, FND ۱۱۳, FA ۱۴۵
CANM ۲۰۵.OL	گرافیک متحرک ۱		CANM ۱۰۵, CANM ۱۱۰, FND ۱۱۳, FA ۱۴۵
CANM ۲۱۰.OL	طراحی دیجیتالی ۱		CANM ۱۰۵, CANM ۱۱۰, FND ۱۱۳, FA ۱۴۵
CANM ۲۳۰.OL	تصویر دیجیتالی		CANM ۱۰۵, CANM ۱۱۰, FND ۱۱۳, FA ۱۴۵
CANM ۲۳۶.OL	عکاسی دیجیتالی		CANM ۱۰۵, CANM ۱۱۰, CANM ۱۲۰, CANM ۲۰۵, CANM ۲۱۰, CANM ۲۳۰
CANM ۲۴۹.OL	طراحی وب ۱		CANM ۱۲۰, CANM ۲۰۵, CANM ۲۱۰, CANM ۲۳۰
CANM ۲۵۰.OL	طراحی دو طرفه ۱		CANM ۱۲۰, CANM ۲۰۵, CANM ۲۱۰, CANM ۲۳۰
CANM ۲۵۳.OL	صوت دیجیتالی		CANM ۲۵۰, CANM ۳۱۰, CANM ۳۳۰, FA ۱۴۳, FA ۲۴۱
CANM ۲۷۰.OL	فن چاپ دیجیتالی		CANM ۲۸۲, CANM ۳۱۰, FA ۱۴۳, FA ۲۴۱

CANM ۲۷۵.OL	طراحی دو طرفه ۲	CANM ۲۵۰, CANM ۲۵۳, CANM ۳۱۰, CANM ۳۳۰
CANM ۲۸۲.OL	طراحی نیمرخ	CANM ۲۵۰, CANM ۲۴۹, CANM ۳۱۰, CANM ۳۳۰
CANM ۳۰۵.OL	گرافیک متحرک ۲	CANM ۲۵۳, CANM ۲۷۰, CANM ۲۸۲
CANM ۳۱۰.OL	طراحی دیجیتالی ۲	CANM ۲۱۰, CANM ۲۳۶, CANM ۲۴۹, CANM ۲۵۰, FA ۱۴۳, FA ۲۴۱
CANM ۳۳۰.OL	تصویر دیجیتالی ۲	CANM ۱۲۰, CANM ۲۰۵, CANM ۲۳۶
CANM ۳۴۹.OL	طراحی وب ۲	CANM ۲۴۹, CANM ۲۵۰, CANM ۳۱۰
CANM ۳۵۸.OL	ویدئو دیجیتالی	CANM ۲۵۳, CANM ۲۷۵, CANM ۲۸۲, CANM ۲۸۲, CANM ۳۰۵, CANM ۳۱۰, CANM ۳۳۰, CANM ۳۴۹
CANM ۳۶۹.OL	طراحی وب ۳	CANM ۳۰۵, CANM ۳۱۰, CANM ۳۴۹
CANM ۶۰۰.OL	MS عملکردهای دیجیتالی	no prerequisites
CANM ۶۰۵.OL	MS فن چاپ برای اساتید فن دیجیتال	no prerequisites
CANM ۶۰۶.OL	MS اصول سودمندی	no prerequisites
CANM ۶۰۸.OL	MS فناوری وب ۱	no prerequisites
CANM ۶۱۱.OL۲	MS طراحی صوتی تخصصی	CANM ۶۰۵, ۶۰۶ and ۶۰۸. CANM ۶۱۸ can be taken concurrently.
CANM ۶۱۲L.OL	MS اسکرپت نویسی لینگو	CANM ۶۴۵
CANM ۶۱۳.OL	MS موضوعاتی در باب گرافیک متحرک	CANM ۶۰۵, CANM ۶۰۶, CANM ۶۰۸, CANM ۶۱۱, CANM ۶۲۲
CANM ۶۱۴.OL	ارتباط دوطرفه تجربی	CANM ۶۰۵, CANM ۶۰۶, CANM ۶۰۸, CANM ۶۱۲
CANM ۶۱۸.OL	MS فناوری وب ۲	CANM ۶۰۵, ۶۰۶ and ۶۰۸. CANM ۶۱۱ can be taken concurrently.
CANM ۶۱۹.OL	MS تصویرسازی دیجیتالی پیشرفته	Department Director Approval

CANM ۶۲۲.OL	MS شکار صحنه ها با ابزار دیجیتال		Basic Knowledge of Manual Camera Controls
CANM ۶۴۲.OL	MS رسانه زمان محور: فلش		no prerequisites
CANM ۶۴۳.OL	MS طراحی دو طرفه و مفاهیم		CANM ۶۰۵, CANM ۶۰۶, CANM ۶۰۸, CANM ۶۱۸
CANM ۸۰۰.OL	MS مطالعه مستقیم		Department Director Approval
CANM ۸۰۱.OL	MS مطالعه مستقیم گروهی - تصویر سازی دیجیتالی		Department Director Approval

## ۲.۵ شرح و سرفصل دروس :

از آنجایی که اطلاعات این بخش در گزارش نهایی این پروژه تاثیر نداشته و صرفاً جهت پردازش در فاز ۲ به کار خواهند رفت این اطلاعات به صورت زبان اصلی ارائه شده اند. جهت سهولت بررسی در فاز ۲ اطلاعات اضافی در مورد درس حذف گردیده و فقط اطلاعات ضروری در مورد تعریف سرفصل، پیش نیاز، تعداد واحد، دانشکده ارائه دهنده درس و نحوه ارزش یابی ارائه شده است.

## CANM 100-OL: Introduction to the Computer (Mac)

Department: Computer Arts New Media

### Course Description

This introductory course provides a strong foundation in the computer skills necessary to excel in all subsequent courses involving digital art and design. The Macintosh operating system is introduced, with in-depth explanation of efficient system shortcuts, navigation, file formats, storage and peripheral devices and common system utilities. Principles of basic bitmap and vector drawing concepts are covered, along with word processing and presentation software. Software: Mac OS, Illustrator, Word,

Powerpoint.

### Student Outcomes

This course will help prepare students for the fast-paced higher-level computer graphics courses. It will cover industry standard software utilized with a creative emphasis. This course will also help students become comfortable and competent with the basics of the Macintosh along with the most current operating system, **OS X 10.5**.

### Sample Syllabus

Module 1	Introduction to the course Hardware Software Brief History of the Macintosh What's New in Tiger
Module 2	How the computer remembers Understanding the root directory of your hard drive The Library and System Folders The Applications Folder The Users Folder
Module 3	Understanding The Menubar The Apple Menu The Commands Menus Menulettes

Spotlight  
The System Preferences

## CANM 105-OL: Design Technology

Department: New Media

### Course Description

This is a required course specifically designed for Computer Arts New Media majors. Design Technology covers a wide range of fundamental technologies involved in professional digital design and production, workflow and best practices. Departmental and professional industry standards are covered in depth. Topics include: digital color, vector graphics, typography for new media, fundamentals of bitmap imaging, scanning, font technologies, the Mac OS, production efficiencies, presentation and output methods. Projects focus on developing efficient production techniques and accurate digital replication of common graphic styles relevant to new media design. Software: MacOS, Illustrator, Streamline, Acrobat, Photoshop.

### Student Outcomes

The objective of this course is to introduce Computer Arts New Media students to fundamental digital design and production techniques and procedures relevant to New Media designers. The course will cover the application of design technologies to achieve and attain experience in common New Media design styles and develop professional, efficient production techniques. Students will demonstrate a thorough grasp of the concepts and technologies introduced and perform at least 4 hours of practice and digital production per week, in order to achieve sufficient experience and abilities to advance to the next level of courses for which this course is a prerequisite. Students will strive to retain and maintain capabilities, and apply the knowledge and experience gained in all future classes.

Students will demonstrate a thorough grasp of the concepts and technologies introduced and perform at least 4 hours of practice and digital production per week, in order to achieve sufficient experience and abilities to advance to the next level of courses for which this course is a prerequisite. Students will strive to retain and maintain capabilities, and apply the knowledge and experience gained in all future classes.

### Sample Syllabus

Module 1	Course scope and objectives.
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	<p>Introduction to Mac OS X/Windows XP.  Introduction to Illustrator.  Creating basic shapes.  The Zoom tool.  The Direct Selection tool.  The Direct Selection tool.  Saving files with Illustrator.</p>
Module ۲	<p>Duplication in Illustrator.  Using Guides to Create Layouts.  Grids.  Pasting and Arranging.  Importing artwork into Illustrator.</p>
Module ۳	<p>Using the Pen tool and Bezier Curves.  Tracing basic shapes in Illustrator.  Creating the Mug and Handle.</p>

## CANM ۱۱۰-OL: Concept, Design & Process

Department: Computer Arts, New Media

### Course Description

This is an essential foundation-level course exclusively for Computer Arts New Media majors. Students are instructed in fundamental design theory, principles, and the design process. Students will learn to develop concepts for digital print, multimedia and web design projects in subsequent courses, and will be introduced to the principles of typography, color theory, research, strategic planning, approaches to solving design problems, developing thumbnails, roughs, layouts and comps. In addition, students will experience working in teams and will develop presentation skills. Students will complete the course with the start of their new media portfolio. This course is specifically targeted and available only to Computer Arts majors in the New Media emphasis to provide a strong conceptual and design foundation and prepare them to approach digital technology as artists and designers.

### Student Outcomes

To expose new Computer Arts New Media students to fundamental design theory and the design processes relevant to aspiring digital publishing, new media and web designers. To

prepare students with a strong foundation in design principles and practices which will benefit their approach to concept and design in all subsequent New Media courses.

Students completing the class will compile a workbook demonstrating concepts, roughs, thumbnails (the concept and design process), color theory and practice exercises. Students should gain an understanding of design terms and definitions, typeface studies, and the results of group conceptual and design projects in which the student participated. Students will also gain experience in presentation techniques and will complete the course with the initial required elements of their New Media portfolio.

#### Sample Syllabus

Module 1	Conceive/perceive a design problem and its proposed solution
Module 2	Using the element of line
Module 3	Using the elements of shape and texture

## CANM 120-OL: Interactive Design

Department: New Media

### Course Description

This course introduces students to the fundamental concepts of design for interactive media prior to entering Interactive Media and Web Design production courses. Design principles, theory, research, elements and the interaction design process are covered. The course will focus on user interface (UI) design, usability, interactivity, user experience, motion graphics for commercial interactive marketing and communications, instructional and informational CD/DVD Roms, web design and other interactive delivery mediums on the horizon.

### Student Outcomes

The objective of this course is to introduce Computer Arts New Media students to fundamental digital design and production techniques and procedures relevant to New Media designers. The course will cover the application of design technologies to achieve and attain experience in common New Media design

styles and develop professional, efficient production techniques. Students will demonstrate a thorough grasp of the concepts and technologies introduced and perform at least 9 hours of practice and digital production per week, in order to achieve sufficient experience and abilities to advance to the next level of courses for which this course is a prerequisite. Students will strive to retain and maintain capabilities, and apply the knowledge and experience gained in all future classes.

#### Sample Syllabus

Module 1	Course scope, overview, and objectives. General principles, purposes, applications, and terminology of new media design and development. The research process and phases of pre-production.
Module 2	Concepting for interactivity. Information structure and formats, flowcharting a project. Navigation theory and practice: information design elements and graphics.
Module 3	Surface Design: the User Interface. Comprehension and consistency in look and feel. Constraints, concerns, and limitations. Visual metaphors.

#### CANM 205-OL: Motion Graphics 1

Department: New Media

#### Course Description

Motion Graphics 1 introduces the theory and production of animated 2D graphics for time-based media environments.

Concept, research, design and pre-production routines for motion graphics projects are covered, focusing on animating typography, graphic objects and still images. Flash is introduced for created enhanced, vector-based interactive animation. AfterEffects is introduced for producing video-based kinetic type and motion graphics.

#### Student Outcomes

The objective of this course is for New Media designers to start thinking in terms of motion and sequential design of a time-based medium. The course will cover the use of multiple technologies to achieve and develop professional, efficient production techniques in Flash and After Effects. The outcome is to learn to create exciting ways to enhance the multimedia experience online while keeping the limitations of accessibility in mind.

Students will demonstrate a thorough grasp of the concepts and technologies introduced, and perform at least six hours of practice and digital production per module, in order to achieve sufficient experience and abilities to advance to the next level.

#### Sample Syllabus

Module 1	Introductions The scope of the course Motion graphics design: time-based media examples, theory, concepts and the preproduction process Establishing design objectives and end-usages
Module 2	Introduction to Flash: interface, capabilities, terminology, tools and workspace Creating basic vector-based animations in Flash Importing artwork assets and supported file formats
Module 3	User Experience: defining the audience, approach, visual references, consistency, grid and usability issues Creating and animating type in Flash Working with movie clips

#### CANM 210-OL: Digital Design 1



**Department:** Computer Arts New Media

#### Course Description

This course focuses on developing design and production skills using industry-standard digital tools to efficiently and accurately

create 2D graphic elements and content. Basic visual design and production techniques are covered, including typography, vector-based graphics, and approaches to corporate identity and branding. These topics and techniques are critical to achieve effective design in any new media industry, whether it be print, web, interactive, advertising or marketing communications.

#### Student Outcomes

Students will develop and apply fundamental graphic design skills, improve typography and typesetting skills, and gain an understanding of the design and production process as it applies to printed communications. They will attain comprehensive understanding and practice with QuarkXPress, including speed, accuracy and efficiency techniques with the software. Students will produce portfolio samples demonstrating concept, design and production skills.

#### Sample Syllabus

Module 1	<p><b>Introduction to QuarkXPress</b>          Interface          Palettes          Preferences          Design Process          The Magazine Project Design Brief</p>
Module 2	<p><b>Character Level Formatting</b>          Text Box Tools          Type Weights &amp; Styles          Kerning &amp; Tracking          Horizontal/Vertical Scaling          Importing Text &amp; Pictures</p>
Module 3	<p><b>Paragraph Level Formatting</b>          Indent          Leading          Alignment          Widow &amp; Orphan Controls          Rule Above/Below</p>

## CANM 230-OL: Digital Imaging 1

Department: Computer Arts New Media

### Course Description

Manipulating and enhancing images is a required skill all computer artists must have to be successful in the digital arts industry. Adobe Photoshop is considered the industry standard for print, multimedia and web imaging. This class acquaints the student with Photoshop's tool sets, techniques, capabilities and commands. Students will learn to make accurate selections, create digital composites and work with contrast and color control/correction and layers, while developing efficiency skills for the many applications of digital imaging.

### Student Outcomes

Students will learn how make accurate selections, create digital composites, work with correcting contrast and color, learn the basic compositing skills through the use of layers, and develop efficiency skills for the many applications of digital imaging.

### Sample Syllabus

Module 1	Digital image structure Introduction to the Photoshop interface Essential tools and palettes Saving files and File Formats
Module 2	Scanning Basics Color Modes Color Settings Designing on Paper vs. The Computer Scanning to size Resolution Input via Digital Cameras File Sizes
Module 3	The Selection tools The lasso tool, Adding to and subtracting from a selection Introduction to Alpha channels Softening a selection

Saving selections Hue saturation Colorizing a black & White image
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## CANM ۲۳۶-OL: Digital Photography

Department: Computer Arts New Media

### Course Description

This course provides Computer Arts New Media majors with training in the general principles of photography relevant to current trends applicable to digital artists. The basic concepts and terminology of traditional and digital photography, composition, color theory, lighting methods and equipment are covered in the context of planning and capturing images specifically for subsequent digital manipulation. Students will learn to plan, compose and optimize image captures destined for digital media and web composites, as well as comps for print projects.

### Student Outcomes

Upon completion of this course, students will:

Demonstrate technical knowledge and skill with the digital camera

Evaluate merits of digital shooting variables and options

Master various shooting setups and approaches

Show creativity and competence in image planning and composition

### Sample Syllabus

Module ۱	Course Introduction The digital sketch book What makes a good picture Designing photographs for impact
Module ۲	Introduction to the digital camera How digital camera's work Image Sensors Point and shoot vs DSLR The Digital single lens reflex My Camera's better then your camera. Who cares?

Module ۳	Megapixels/Size does matter The Menu Options Resolution File Formats Optical vs. Digital zoom
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## CANM ۲۴۹-OL: Web Design ۱

Department: Computer Arts, New Media

You must have Real Player to view this video. [Click Here](#) to download and install.

### Course Description

This course covers introductory design and production for the web. Students will be instructed on how to design and adapt content for this medium. Using various software packages, the student will learn to create fully functional web pages and sites including text and graphics. Hyper-Text Markup Language (HTML) coding, transitional HTML with Cascading Style Sheets (CSS), site structure and navigation methods will be covered as well as basic gif animations and cross platform and browser issues.

### Student Outcomes

Students will be able to code XHTML, and CSS, optimize images, plan, organize, structure and design functional web sites.

### Sample Syllabus

Module ۱	<p><b>Introduction: What is the Web?</b> This first module introduces you to the class in general, and to the structure, hierarchy, and navigation of Web sites. It looks at such issues as design strategies, the conventions and limitations of the Web, understanding an audience and a site's purpose, dealing with unknown monitor resolutions, designing for the "first screen," and basic accessibility issues.</p>
Module ۲	<p><b>Basic XHTML.</b> The technical issues addressed in this module include creating and saving your pages, specifying a "home" page, XHTML tags, editing webpages, organizing files, and viewing your files in a browser. We will also look at text:</p>



	creating bold and italic text, changing the size of text, using monospaced and preformatted text, creating superscript and subscript, and blockquoting.
Module ३	<b>Lists and Links.</b> The focus here is on creating ordered and unordered lists, choosing markers and where to start list numbering, and creating definition lists. We will also conduct an overview of links: links to other webpages, anchors and linking to them, email links, and displaying linked pages in target windows. Finally we will look at images as links, and how to specify clickable regions on images (image maps).

## CANM २५०.OL: Interactive Media १

Department: New Media and Graduate New Media

### Course Description

Interactive multimedia authoring offers some of the greatest challenges in digital design. Text, images, animation, video, and audio elements are combined to create compelling interactive user experiences. Students will explore the fundamentals of designing, authoring, and producing many types of interactive multimedia including interface design, usability, navigation, flowcharting, interaction, and animation. Students will use Flash as both a content creation and production tool.

### Student Outcomes

Create Flash projects with strong concepts and functional interactive design.

Learn to use the drawing and animation tools in Flash.

Create special effects by expanding upon the basic tools and techniques.

Learn to apply basic ActionScript to add interactivity to your projects.

### Sample Syllabus

Module १	Introduction to Flash and Its Capabilities
Module २	Drawing Tools and Basic Design

Module ۳

Organization and Structure  
of Data and Assets

CANM ۲۵۳-OL: Digital Audio ۱ (MAC only)

Department: Computer Arts New Media

Course Description

This course introduces New Media majors to the fundamental concepts of digital audio specifically for end-use in interactive media, web, motion graphics and video new media projects. Students will learn the principles of digital audio editing, timing, mixing, sequencing, midi and compression technologies. Emphasis is placed on supplementing and reinforcing visual communications with appropriate sound and music, audio concepts and terminology, establishing mood, file formats and optimizing file sizes.

Additional Online Course Information

Although the class is centered on creating audio with a Macintosh computer, students with Windows-based machines will also be able to complete the coursework and assignments.

Student Outcomes

Upon successful completion of Digital Audio ۱, you will learn the following skills:

Editing and manipulating digital audio

Creating drum and music loops

Making music with Reason software

Arranging a musical composition

Programming a synthesizer

Using effects to enhance your music

Designing sounds for web and video

Creating an audio CD with your own music tracks

Sample Syllabus

Module ۱	Introduction and Brief History of Electronic Music
Module ۲	Audio Editing with Peak and ReCycle
Module ۳	Introduction to Reason

## CANM 270-OL: Digital Typography

Department: Computer Arts New Media

### Course Description

This course emphasizes the importance of typography in the design process and focuses on providing the student with the digital tools and techniques necessary to achieve professional typographic solutions. The digital tools now available have introduced an explosion of new type treatments and techniques which the digital artist must be capable of reproducing. Knowledge and skills in digital typography are more complex and in demand than ever. Students will learn to incorporate the basic principles of typography with the essential technical skills necessary to achieve success in New Media design and production.

### Additional Online Course Information

Students will also design and produce an original, functional font.

### Student Outcomes

Students will develop an advanced understanding and appreciation of typography as an essential design and communication element. They will improve typographic skills, techniques, and efficiency with industry-standard digital applications. Students will also create an original, standard, installable font, and learn methods of modifying existing fonts.

### Sample Syllabus

Module 1	Introduction to Digital Typography
Module 2	Rules of Good Typography
Module 3	Paragraph-Level Formatting

## CANM 275.OL: Interactive Media 2

Department: New Media and Graduate New Media

### Course Description

This courses focuses on advanced interactive design and production utilizing Flash and advanced ActionScripting. Immersive interactive experience design is achieved utilizing the advanced scripting capabilities of Flash. Flash is used for delivery via the web or as a stand-alone application for delivery over

multiple mediums and devices. Rich media including video, audio, animated graphics and typography are incorporated.

#### Student Outcomes

Create Flash projects with strong concepts and functional interactive design.

Learn to use the drawing and animation tools in Flash.

Create special effects by expanding upon the basic tools and techniques.

Learn to apply basic ActionScript to add interactivity to your projects.

#### Sample Syllabus

Module 1	Course scope and objectives. Intermediate programming and variables
Module 2	Data types and User Interface elements.
Module 3	Operators and statements; structuring the code

## CANM 282-OL: Portfolio Design

Department: Computer Arts New Media

### Course Description

This important midpoint course for Computer Arts New Media majors provides training in the aesthetics, presentation, materials, required elements and production of a New Media-based portfolio. Students will present their projects and assignments produced in prerequisite courses for critique and discussion. Students will then redo, update, revise and improve their existing body of work and produce additional projects as required to increase the range and variety of creative and technical proficiency samples available. Finally, students will produce a professional portfolio with a consistent identity and marketing system as a foundation for further development and refinement in their remaining new media courses.

### Additional Online Course Information

Like its on-campus counterpart, this online course will focus on the development of student portfolios through numerous presentations and critiques. This is not a course based on instruction in software

and digital techniques; rather, it is the student's first opportunity to examine and present their work as a whole while exploring work in the design industry and learning what it expects of New Media designers. Students will, therefore, be expected to know and rely upon the design and production skills acquired from previous courses in the New Media Department. Additionally, for the benefit of everyone's portfolio development, critical evaluation will be required by all participants. To this end, one of the essential goals of this midpoint course is participation in the critiques; the value and importance of each student's contributions in the discussions cannot be overstated.

#### Student Outcomes

Develop existing and new projects to reflect the full range of new media design and production skills required by the department and new media industries. Focus on improving physical and verbal portfolio presentation skills, communication and evaluation skills, organization, and confidence. Build a flexible, adaptable and comprehensive professional portfolio.

#### Sample Syllabus

Module 1	Introduction, course scope, and objectives
Module 2	Presentation, review, and evaluation of students' existing body of work
Module 3	Portfolio formats, elements, and options

### CANM 3.5-OL: Motion Graphics 2 - MAC ONLY

Department: Computer Arts New Media

#### Course Description

This course focuses on advanced motion graphics development utilizing AfterEffects and video editing with Final Cut Pro. The objective of this course is to design and produce highly compelling time-based graphics and typography for end-use as film/video title and credit sequences, commercials, short-form video-based stories, and experimental motion graphics.

#### Student Outcomes

Students will learn how to animate objects and text in a realistic and life-like way. They will develop skills in rotoscoping, particles

and effects, 2D character animation, 2D cameras and movement, and adding audio to motion graphics. Students will create a Flash-based motion graphics portfolio and a DVD portfolio.

#### Sample Syllabus

Module 1	Introduction to After Effects
Module 2	Masking
Module 3	Animating Text

### CANM 310-OL: Digital Design Two

Department: Computer Arts New Media

#### Course Description

Students will concentrate on the graphic design process, research, concept development, comping, style variations and efficient production techniques. Assignments in this class will focus on typography, page composition and production for printed publications. Advanced Adobe InDesign techniques will be used to design and output complex composite files including vector and bitmap graphics. Resolution and color issues will be covered along with general image manipulation relevant to publishing production using Adobe Photoshop. Topics include service bureaus and clients, efficient workflow, best practices and creating trouble free files for reproduction.

#### Additional Online Course Information

We will discuss the importance of print design to the New Media designer and the digital tools used in the printing industry. We will cover Adobe InDesign's role in the industry, develop a thorough understanding of its features and capabilities, create many documents in numerous formats, print designs to various output devices and explore digital proofing and output in the form of Acrobat Portable Document Format files.

Most importantly, we will develop the unique, balanced approach to design that must include both mastery of technical materials and the digital toolset as well as the knowledgeable application of the elements and principles of design which effectively communicate design concepts. To this end, the value and importance of each student's contributions in the Discussions can not be overstated.

#### Student Outcomes

Students will gain comprehensive understanding of Adobe InDesign and the process of designing for print production. Students will learn the fundamental principles and essentials of print design. Students will produce portfolio samples demonstrating concept, design and production skills.

#### Sample Syllabus

Module 1	Introduce students to Adobe InDesign, an exciting page design application rich in features that is quickly being adopted by the print industry.
Module 2	Building familiarity with the Toolbox and essential keyboard shortcuts. Using InDesign's tools to create compelling designs. Using Adobe's Color Settings files to achieve consistent color previews between the Creative Suite applications and to achieve consistent color output from inkjet and other printers.
Module 3	Design Essentials Review (Part One), knowing your message and creating a visual hierarchy, a review of the graphic design elements, line, type, shape, & texture, typeface characteristics and classification, character level formatting and a discussion on linear and non-linear methods of research.

CANM 330 -OL: Digital Imaging 2

**Department:** Computer Arts New Media

#### Course Description

This class builds on the foundation laid by Digital Imaging 1. The deeper implications and more complex features of Adobe Photoshop will be explored. Topics will include the significance of paths and channels, advanced layer work to achieve more creativity, and control over output. The appropriate application of filters and channel calculations will be discussed in depth, as will the CMYK and RGB color spaces in relationship to printed output

and resolution, as well as system calibration. Concept and design will be stressed.

#### Student Outcomes

Students will develop intermediate and advanced imaging, compositing, color correction and other techniques at a professional, production-environment level.

#### Sample Syllabus

Module 1	Color Correction Review
Module 2	Blending Mode Composites
Module 3	Calibration and Color-Matching

### CANM 349-OL: Web Design 2

Department: Computer Arts, New Media

#### Course Description

This course covers intermediate tools and techniques in Web design and development, focusing on web standards compliance via XHTML and CSS as well as accessibility techniques. Students will be instructed in designing practical, compelling user experiences and building professional-level sites. Web delivery methods for sound, video, animation and interactive content will be covered by incorporating Flash skills covered in Interactive Media courses. Dreamweaver is covered in depth to bring additional design efficiencies and functionality to websites. Using various software packages, including Fireworks and BBEdit, the student will create fully functional, complex, structured websites including multimedia content.

#### Student Outcomes

Students will be able to use Dreamweaver to design and build functional, attractive web sites.

#### Sample Syllabus

Module 1	Introduction, Course Scope and Objectives. Dreamweaver Basics: Introduction to the Dreamweaver authoring environment; defining a site; using the Files panel; preplanning and setting up a sitemap; working with text.
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Module २	Page layout utilizing tables (standard and layout.) Working with images.
Module ३	Links, rollovers, imagemaps, Flash buttons.

## CANM ౩౫౮-OL: Digital Video ౧ (MAC Only)

Department: New Media

### Course Description

Advancing the concepts learned in Motion Graphics ౧ and ౨, this course focuses on short-form story concepts for digital video, lighting, blue-screen techniques and synchronizing music, sound and video with intermediate editing techniques. In addition, DVD Studio Pro will be introduced for the design, authoring and production of interactive DVDs. Final Cut Pro is used for editing, and Adobe AfterEffects for visual effects. Essential video utilities, file formats, compression and streaming will be explained.

### Student Outcomes

The objective of this course is for New Media designers to combine their typography, imaging, and audio skills into a time-based medium. The course will cover the application of multiple technologies to achieve and develop professional, efficient production techniques.

Students will demonstrate a thorough grasp of the concepts and technologies introduced, and perform at least six hours of practice and digital production per module, in order to achieve sufficient experience and abilities to advance to the next level.

### Sample Syllabus

Module ౧	Introduction, course scope and objectives Introduction to After Effects: interface, capabilities, typical applications and terminology
Module ౨	Storyboarding for multimedia/video projects Basic animation techniques Designing with type in After Effects
Module ౩	Introduction to Final Cut Pro Sound, mixing, editing and compression Sound as a creative design element: reinforcing and supporting the video elements and story

## CANM ۳۶۹-OL: Web Design ۳

Department: Computer Arts New Media

### Course Description

This course prepares New Media students interested in a career focused on web design with the skills necessary to develop, coordinate, produce and maintain advanced websites. Building on the technical and aesthetic skills covered in Web Design ۱ and ۲, students will be exposed to advanced web techniques using PHP server-side scripting and MySQL database-driven, template-based site design. Students will work in teams to develop complex, functional websites focusing on professional usability, interactivity, managed content and compelling user experience.

### Student Outcomes

Apply CSS to design websites. Use PHP to create pages with dynamic content that updates itself and makes decisions based on user input. Create MYSQL databases to store, sort, and organize data. Use Flash to connect to PHP scripts and databases to make dynamic websites.

### Sample Syllabus

Module ۱	Semantic markup and XHTML
Module ۲	CSS DTD
Module ۳	Image Replacement Techniques

## CANM 600-OL: MS Digital Applications

Department: Computer Arts New Media

### Course Description

Through the use of traditional techniques and digital media, students will explore the principles of developing illustrations. Each student's creativity, self-expression and visual communication skills are stressed. Verbal to visual translation exercises are presented.

### Additional Online Course Information

We begin by exploring concepts in color theory and basic design principles then moving on to more complex projects such as the final, an editorial illustration for a magazine. All assignments are designed as real world illustration projects to help the students develop portfolio pieces.

### Student Outcomes

#### Instructor's Goal:

The goal of the class is to teach students to communicate their concepts through images and develop strong conceptual skills for problem solving and brainstorming while exploring digital tools.

Upon completion of this course, the student will be able to:

Develop a unique illustration style while exploring a diverse use of media

Create digital illustrations combining Adobe Photoshop, Corel Painter and Adobe Illustrator.

Problem solve using conceptual thinking to communicate, and brainstorm ideas.

Incorporate strong design principles and a knowledge of color theory into their illustration projects.

Use research and reference material to help develop their concepts into an individual voice.

Understand which digital tools to use to create solutions for illustration projects

### Sample Syllabus

Module 1	<b>Color Theory / Elements of Design</b> Photoshop- Color / Layers Illustrator-Shapes / Paths <b>Project 1 Abstraction</b> Interpreting mood with color and shape Nonobjective
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Module ۲	<b>Principles of Design</b> Photoshop-Color / Layers Illustrator-Shapes / Paths Shapes Due
Module ۳	<b>Approaching a project-How to          Brainstorm concepts</b> Thumbnail / Sketches / Comps Presenting ideas Contrast / Balance / Value / Composition <b>Project ۲ Famous Quote</b> Two Color Spot Illustration Representational

## CANM ۶۰۵-OL: MS Typography for Digital Masters

Department: New Media and Graphic Design Graduate Programs

### Course Description

The general fundamentals of traditional typography will be covered in this class, from historical classic fonts to the new classics in the digital arena. This course encompasses appropriate implementation, developing sophisticated type aesthetics and hands-on experimental projects.

### Student Outcomes

Comprehend typographic history and master the essential fundamentals of typography.

### Sample Syllabus

Module ۱	Typographic history: Introduction Fundamentals: Anatomy Homework: ۲۷th letter of the alphabet
Module ۲	Typographic history: Typographic Renaissance Fundamentals: Font, Family & Style Homework: Movie posters
Module ۳	Typographic history: Commercial Modern and Late Modern Fundamentals: Screen Legibility Homework: Web pages



## CANM 606-OL: MS Principles of Usability

**Department:** Computer Arts, New Media

### Course Description

Reject bad design! Learn how to design with purpose and confidence.

This course addresses the basic principles of usable design including listening to your users, understanding your medium, and being able to bridge the two with a well-designed user interface. This is not your typical design class — you will exercise your analytical and communication skills more than your aesthetic skills.

We will be exploring methods from cognitive psychology for researching user needs. We will learn to objectively evaluate the usability of products that we encounter every day. We will learn to design from user requirements, and how to test our designs to verify their successes or uncover design flaws

### Student Outcomes

Develop natural ability to decipher the mission and goals for simple and complex interactive products; value user end functionality.

### Sample Syllabus

Module 1	<p><b>Introduction to Usability</b></p> <p>Design is Everywhere (Looking at the world from the user's perspective)</p> <p>What is Usability? (Function vs. aesthetic concerns)</p> <p>What is Human Factors?</p> <p>User Centered Design Process (Stages of design through to production and launch)</p> <p><b>Assignments:</b> 1.1 Observe usability of objects in your environment.</p> <p><b>Assignments:</b> 1.2 Design your resume for print.</p>
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Module ۲	<p><b>Discussion:</b> ۱.۱</p> <p><b>Usability Evaluation Techniques</b>  Heuristic evaluations  Usability testing  Focus groups  Ethnography</p> <p><b>Assignments:</b> ۲.۱ Conduct a heuristic evaluation.  Discuss ways you've obtained feedback on your past design (informal or formal).</p>
Module ۳	<p><b>Standards and Guidelines</b>  HCI guidelines  Web design guidelines  Flash design guidelines  Difference between user interfaces and appropriate guidelines</p> <p><b>Assignments:</b> ۳.۱ Design a resume site</p> <p>Discuss observed design conventions and the tradeoffs between function / convention and novelty / enjoyment</p>

CANM ۶۰۸-OL: MS Web Technology ۱

Department: New Media

### Course Description

Web Technology I prepares the designer to take full advantage of the opportunities afforded by the web. This course covers issues of design, project management, and the basic coding languages of front-end design. The projects in class will allow students to explore the entire process of web design and development. Languages covered in this class include HTML, XHTML, CSS, and JavaScript. This course also covers the issues of information architecture, usability and user interface design. Students will explore major design concepts involving typography, color, navigation design, and code as a design tool.

### Student Outcomes

Students will gain a broad understanding of the web and how it



works.

Students will learn the fundamentals of organizing and developing a web site.

Students will learn what it takes to design usable, transparent navigation.

Students will gain comfort with the basic language of the web, Hyper Text Markup Language - HTML - through hand coding.

Students will also learn the basics of Cascading Style Sheets and JavaScript.

#### Prerequisites

Basic familiarity with computers, saving files and organizing files in folders.

Familiarity with at least one image editor such as Photoshop or Fireworks

#### Sample Syllabus

Module ١	Intro to the Web
Module ٢	HTML - Introduction
Module ٣	What makes the web the web? The Authoring Environment

#### CANM ٤١١-OL: MS Sound Specific - MAC ONLY

Department: Computer Arts New Media

#### Course Description

This class covers modern techniques used in designing sound for various types of multimedia. The first part of the course will involve basic grounding in audio theory, MIDI, and digital audio recording/editing. Students will spend time on designing effects in order to create the proper sonic environment for intended projects.

#### Additional Online Course Information

The course will mainly focus on two Apple software programs: Logic Express and Peak LE ٥. Logic Express and its set of plug-in synths will be used to teach synthesis, sampling/loop playback and editing, simple MIDI sequencing, effects, automation, and mixdown. Some of the more advanced audio-based classes involving multi-track audio, editing, more automation, and video integration will be

using Peak LE for the Mac.

#### Student Outcomes

In addition to a basic grounding in the basics of what sound is, by the end of this class you should be reasonably well versed enough in the Logic Express program to use it for basic MIDI sequencing, including effects, automation, and mixdown. You will also have some skills in using Peak LE to import and edit sounds,

synchronize them with movie files (we will also learn about video format basics), automate your mixes, mixdown your files, master them, and using Quicktime Pro, be able to paste the soundtrack into an existing movie file to create a believable soundtrack.

#### Sample Syllabus

Module 1	Intro — Basics of Sound
Module 2	What Sound Is Composed of
Module 3	Logic Express — Subtractive Analog Synthesis in Action

### CANM 611-OL: MS Sound Specific - PC ONLY

Department: Computer Arts New Media

#### Course Description

This class covers modern techniques used in designing sound for various types of multimedia. The first part of the course will involve basic grounding in audio theory, MIDI, and digital audio recording/editing. Students will spend time on designing effects in order to create the proper sonic environment for intended projects.

#### Additional Online Course Information

The course will mainly focus on two PC software programs: Acid Pro and SoundForge. Acid Pro and a set of freeware or shareware plug-in synths and effects will be used to teach synthesis, sampling/loop playback and editing, simple MIDI sequencing, effects, automation, and mixdown.

#### Student Outcomes

In addition to a grounding in the basics of what sound is, by the end of this class you should be reasonably well versed enough in the Acid Pro program to use it for basic MIDI sequencing, including effects, automation, and mixdown. You will also have some skills

in using Soundtrack Pro to import and edit sounds, synchronize them with movie files (we will also learn about video format basics), automate your mixes, mixdown your files, master them, and, using Quicktime Pro, be able to paste the soundtrack into an existing movie file to create a believable soundtrack.

#### Sample Syllabus

Module ١	Intro — Basics of Sound
Module ٢	What Sound Is Composed of
Module ٣	Acid Pro — Subtractive Analog Synthesis in Action

#### CANM ٤١٢L-OL: MS Scripting - Lingo

Department: New Media and Graduate New Media

#### Course Description

Focusing on the final project in interactive design, students will refine their skills by working in the Lingo scripting environment.

#### Student Outcomes

To become acquainted with many of Director's advanced features with an emphasis on programming.

To provide an insightful view into interactive media.

To create a thorough understanding of the elements that make a successful interactive project.

#### Sample Syllabus

Module ١	Basic Lingo Scripting Script Windows Script Syntax
Module ٢	Buttons Rollover Behaviors Creating Script Animations
Module ٣	Property Description List Creating Reusable Scripts Advanced Scripting Ideas

#### CANM ٤١٣-OL: MS Topics in Motion Graphics

Department: Computer Arts

### Course Description

This course gives an introduction to principles of motion graphics using Adobe AfterEffects. Research and design for motion graphics projects will be covered, from concept and storyboard, through production and then to final delivery as a compressed movie. Students will create AfterEffects projects, using the basics of keyframe animation, multi-layered compositions, designs with effects, transparency, motion typography, audio, and rendered compressed movie files.

### Student Outcomes

After completing this course, you will be able to identify and use the major features and tools of Adobe After Effects. You will be able to create motion graphics and visual effects for film, video, multimedia, and the Web, using still graphic images, text, and video. You will also understand some basics of film grammar such as shot types and continuity.

### Sample Syllabus

Module ١	A Brief History of After Effects
Module ٢	Introduction to the use of audio and syncing it with an animation
Module ٣	Designing Frames: Grids and the Rule of Thirds

### CANM ٦١٤-OL: MS Experimental Interactivity

Department: New Media and Graduate New Media

### Course Description

Experimental Interactivity will focus students on creating and programming new concepts in interface design. The class will present design and programming problems that will challenge students to generate projects that push the limits of what is happening in web design, CD ROM and interactive fine arts.

### Student Outcomes

The goal is to get students to think of new ways to present and browse the content of their projects and learn advanced programming methods to make their most complex ideas come to life. Instruction will include examples of successful real world projects. Programming examples created in Flash and

Shockwave will be demonstrated each week.

#### Sample Syllabus

Module ١	Basic scripting concepts and ideas. Defining functions and variables. What are functions and variables?
Module ٢	Understanding and application of function literals. Creating movieclip buttons.
Module ٣	Creating a group of buttons that communicate. For loops.

#### CANM ٤١٨-OL: MS Web Technology ٢

Department: Computer Arts, New Media

#### Course Description

This course will focus on the development of a full understanding of the methodologies and technologies used in development of interactive websites for the Internet. These technologies are implemented in client-side or server-side systems that provide the functionality and visual materials of the Web. We will explore in-depth examples of the primary technologies employed in both client and server. These technologies include client-side technologies such as CSS, JavaScript and DHTML, and server-side technologies such as JavaServer Pages (JSP), Perl, Visual Basic, SQL and Active Server Pages (ASP). Each student will develop an active website, in which they will explore the use of these technologies. The students will learn strategies and methodologies used by high-tech companies as a framework for successfully designing, implementing and delivering development projects.

#### Student Outcomes

To understand the technologies and methods used to develop interactive websites.

To conceive, design and develop an interactive web application using our vision, knowledge and experience of web technology.

#### Sample Syllabus

Module ۲	Technology Session
Module ۳	JavaScript and Interactivity: Functions and Events
Module ۴	Web Technology, DOM, Loops

## CANM 619-OL: Advanced Digital Imaging

Department: Computer Arts New Media

### Course Description

This course will explore Adobe Photoshop CS<sub>2</sub> as an advanced tool for photo editing, photo illustration and its application in the digital film and game industries, solidifying the graduate student's expertise in digital imaging. Graduate students will be required to develop portfolio-quality projects in each category, with emphasis on conceptual development and production organization. The photoshop interface will be covered in depth. Its application to textures, color correction, motion graphics, backgrounds for compositing, blue screen replacement and 3D camera mapping will be explored, as well as its applications for multimedia.  
(Department Director Approval Required)

### Student Outcomes

Students will achieve a confident mastery of manipulating and enhancing photographic images using the latest version of Adobe Photoshop and other third party applications.

### Sample Syllabus

Module 1	<p><b>New features:</b> File handling with Adobe Bridge – automated batch to rename and convert format, sophisticated search file feature Customizable workspaces and menus Multiple layer control Vanishing point filter Smart objects filter (non-destructive scaling of raster and vector graphics) Image warp filter Advanced noise reduction 32-bit High Dynamic Range (HDR) support (expanding shadows and highlights range) Spot healing brush photo retouch One-click red-eye correction Adobe Bridge image-review - Present your images with features like Slideshow and Filmstrip mode; scale thumbnails to any size using a slider; and view and edit metadata.</p>
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	Web animations
Module २	<p>File handling with Adobe Bridge:  Organize, browse, locate, and view files  and access to assets directory structure  Search file feature  Access to stock photos  Multitasking with Adobe Bridge (demos)  Compact floating mode in Adobe Bridge to  process images while simultaneously  working in Photoshop CS२  Slideshow and Filmstrip mode; scale  thumbnails to any size using a slider; and  view and edit metadata.  Automated batch to rename files</p>
Module ३	<p>Image Adjustment: Using curves and other  color correction tools:  Curves  Levels  Balance  Cloning</p>



## CANM 622-OL: MS: Digital Capture

Department: Computer Arts, New Media

### Course Description

This graduate level course is designed to provide students with digital capture skills beginning with the most common applications. The course will cover basic digital camera controls and features, storage media and file size/formats related to the expected use for the image. The course will be based around digital cameras and will include demonstrations. Weekly creative and technical assignments will be given and optimizing photos for a digital workflow will be discussed. This course requires students to have basic knowledge of manual camera controls.

### Additional Online Course Information

Students will learn how to use your camera in all modes (not just auto!) and the fundamentals of photography. We will also cover histograms, white balance, lighting, and composition.

### Student Outcomes

By the end of this course, you will be able to use your camera in all sorts of situations without missing the shot! You will have learned the components of shooting a successful photograph through various technical and creative assignments. You will also understand the basic terminology of photography and be able to successfully download files and manage data.

### Sample Syllabus

Module 1	Introduction to Digital Photography
Module 2	Understanding Exposure
Module 3	Overriding Auto Mode

## CANM 642-OL: MS: Time Based Media - Flash

Department: Computer Arts, New Media

### Course Description

Students create projects from CD-ROM and from the web that combine images, text, sound and animation. These elements are brought together to create individual visual statements. Interactivity and animation are introduced using Flash.

### Additional Online Course Information

Throughout the course, students will acquire a fundamental knowledge of Flash's programming language, Actionscript. Students will embark on a journey into the challenging issues facing designers and artists today. The relationship between still pictures interface and animated sequences will be explored. Students will develop abilities and tools to initiate this dialogue, and create sophisticated strategies to convert their ideas into practice. The complex projects elaborated throughout the modules will be a valuable piece for the graduate student's digital portfolio.

### Student Outcomes

To produce several projects exploring the different options and tools available in Flash Studio 8. The projects that each student will produce in this class include four Flash movies and three websites that contain these movies.

To comprehend and practice the fundamentals of storyboarding for interactivity. Each graduate student will understand and create buttons and construct movie clips.

To gain the ability to produce complex Flash files that combine at least fifteen other movies.

### Sample Syllabus

Module 1	Introduction to Macromedia Flash Create an instance of an object. Manipulate that instance.
Module 2	Communicating with Flash Start and stop movie clips. Use animations nested inside each other. Work with storyboards to develop your ideas.

Module ३

Creating a Slide Show  
How to mask layers.  
How to create buttons.

## 643-OL: MS: Interactive Design & Concepts

Department: New Media

### Course Description

This core class for masters students in New Media is designed to undergo the preproduction process leading to successful final project development in directed study. Students will examine, explore, evaluate and define their purpose in the program in order to present a meaningful MFA Final Project proposal that will be presented at midpoint. The class will involve the value and opportunity of establishing one's 'personal message' through insightful technical innovation, using it as a conduit for advanced expression and contribution. In-depth problem solving is essential in devising revolutionary means for learning, community building and communication to various audiences. Students will engage in significant problem solving requiring the pairing of visual communication skills with new media tools.

### Student Outcomes

This course will prepare students with all the necessary components and confidence building skills essential for a convincing final project concept. This includes oral presentation practices, production of all written and visual presentation components, and individualized topic research to set the groundwork for the final project development and a successful midpoint review.

### Sample Syllabus

Module 1	Introduction to the Class & Midpoint Review Process
Module 2	Evaluating Your Project Concepts
Module 3	Visual Conviction

## CANM 801-OL: MS: Group Directed Study - Digital Illustration

**Department:** Computer Arts - New Media

### Course Description

Graduate students working on their individual Final Projects receive instruction and critiques of their work in a group environment. In addition to regular instructor critiques of their work in progress, graduate students discuss approaches to their Final Projects as peers. Specific goals are stated at the beginning of the semester. Group Directed Study topics change each semester. (Department Director Approval Required).

### Student Outcomes

Upon completion of this course, the student will be able to:  
Develop a unique illustration style while exploring a diverse use of media.

Create digital illustrations combining Adobe Photoshop, Corel Painter and Adobe Illustrator.

Solve problems using conceptual thinking to communicate and brainstorm new ideas.

Incorporate strong design principles and a knowledge of color theory into illustration projects.

Use research and reference material to help develop their concepts into an individual voice.

Understand which digital tools to use to create solutions for illustration projects.

### *Instructor's Goal:*

The goal of the class is to teach students to communicate their concepts through images and develop strong conceptual skills for problem solving and brainstorming while exploring digital tools.

### Sample Syllabus

Module 1	<b>Introductions and description of the Final thesis semester plan to students</b> Presentation of how digital applications will be a requirement to be applied in the Thesis Project. Review the definition of thesis project purpose and parameters; brainstorm on how individual students can apply illustrative disciplines, color schemes, elements of design, and color theory to
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	their final thesis.
Module ۲	<p><b>Inspirations/influences for Thesis Project</b>  Students explore case studies of related illustrations/inspirations/influences for their Thesis Project. Students post inspirational visual arts and digital imaging related to the relevance of their Thesis Project. Time allotted for discussion, questions, clarifications among all students and the instructor.</p>
Module ۳	<p><b>Students present their independently conceived concepts for Thesis Projects that utilize digital applications software (i.e. Adobe Photoshop CS۲, Corel Painter, and Adobe Illustrator)</b>  Student presentations on how digital applications will be used and applied in Thesis Project. Review the definition of student's thesis project purpose and parameters; discussion of current state of individual projects; review of how individuals are applying illustrative disciplines, color schemes, elements of design, and color theory to their final thesis. There will also be a general investigation of individual goals and objectives.</p>

## DIG 150-OL: User Experience

Department: Digital Arts & Communication

### Course Description

This course addresses the basic principles of usable design including listening to your users, understanding your medium, and being able to bridge the two with a well-designed user interface. This is not your typical design class - you will exercise your analytical and communication skills more than your aesthetic skills. We will be exploring methods from cognitive psychology for researching user needs. We will learn to objectively evaluate the usability of products that we encounter every day. We will learn to design from user requirements, and how to test our designs to verify their successes or uncover design flaws.

### Student Outcomes

The goal of this course is to understand the fundamentals of designing for usability. Students will need to have shown an understanding of user-centered design methods and what makes a design usable. Students will be evaluated on their aptitude for problem solving, comprehension, and communication.

### Sample Syllabus

Module 1	Introduction to class, what is usability?
Module 2	Heuristics
Module 3	The Design of Everyday Things I

## DIG ۲۲۰-OL: Internet Design ۱

Department: Digital Arts & Communication

### Course Description

The internet is a vast and varied information space. It is one of the most profound advances in publishing since Gutenberg. What designer wouldn't want to be part of this huge new experiment? This class is an introduction to the technologies that make the web run. This class emphasizes personal mastery of the technologies needed to control this new medium. Equally important, students will gain a sophisticated understanding of how sites are developed and shaped.

### Student Outcomes

Students will gain a broad understanding of the web and how it works.

Students will learn the fundamentals of organizing and developing a web site.

Students will learn what it takes to design usable, transparent navigation.

Students will gain comfort with the basic language of the web, Hyper Text Markup Language - HTML - through hand coding.

Students will also learn the basics of Cascading Style Sheets and JavaScript.

### Prerequisites

Basic familiarity with computers, saving files and organizing files in folders.

Familiarity with at least one image editor such as Photoshop or Fireworks

### Sample Syllabus

Module ۱	Intro to the Web
Module ۲	HTML - Introduction
Module ۳	What makes the web the web? The Authoring Environment



## DIG 308-OL: Image and Motion

**Department:** Digital Arts & Communication

### Course Description

This course gives an introduction to principles of motion graphics using Adobe AfterEffects. Research and design for motion graphics projects will be covered, from concept and storyboard, through production and then to final delivery as a compressed movie. Students will create AfterEffects projects, using the basics of keyframe animation, multi-layered compositions, designs with effects, transparency, motion typography, audio, and rendered compressed movie files.

### Student Outcomes

After completing this course, you will be able to identify and use the major features and tools of Adobe After Effects. You will be able to create motion graphics and visual effects for film, video, multimedia, and the Web, using still graphic images, text, and video. You will also understand some basics of film grammar such as shot types and continuity.

### Sample Syllabus

Module 1	A Brief History of After Effects
Module 2	Introduction to the use of audio and syncing it with an animation
Module 3	Designing Frames: Grids and the Rule of Thirds

## DIG 310P-OL: Emotion & Sound (PC ONLY)

Department: Digital Arts & Communication

### Course Description

The course will mainly focus on two PC software programs: Acid Pro and SoundForge. Acid Pro and a set of freeware or shareware plug-in synths and effects will be used to teach synthesis, sampling/loop playback and editing, simple MIDI sequencing, effects, automation, and mixdown.

### Student Outcomes

In addition to a grounding in the basics of what sound is, by the end of this class you should be reasonably well versed enough in the Acid Pro program to use it for basic MIDI sequencing, including effects, automation, and mixdown. You will also have some skills in using Soundtrack Pro to import and edit sounds, synchronize them with movie files (we will also learn about video format basics), automate your mixes, mixdown your files, master them, and, using Quicktime Pro, be able to paste the soundtrack into an existing movie file to create a believable soundtrack.

### Sample Syllabus

Module 1	Intro — Basics of Sound
Module 2	What Sound Is Composed of
Module 3	Acid Pro — Subtractive Analog Synthesis in Action

## DIG ۳۱۲-OL: Actionscripting Design and Methods

Department: Digital Arts & Communication

### Course Description

Using Macromedia's Flash, web developers can build wonderful, rich media interactive experiences. This class focuses on ActionScript, the programming language used to create those great web applications. ActionScript takes Flash applications to a new level of sophistication. It allows the developer to embed logic in web pages and enhanced interactivity.

### Student Outcomes

To gain an over all grasp of ActionScript, it's syntax and varied uses.

To learn how to write ActionScript from scratch

To develop gain greater insight in user experience

To increase understanding of the web development process

To aquire greater skill in interactive design

### Sample Syllabus

Module ۱	Introduction to ActionScript
Module ۲	Multiple Timelines and Methods
Module ۳	Logic and Control

## ESL 102.OL: English For Art Purposes 2

Department: English as a Second Language

### Course Description

This course introduces students to basic English reading, writing, and grammar skills. Students will develop effective reading strategies and increase their vocabularies by reading and analyzing short pieces of fiction and non-fiction. Interactive activities will help students develop grammatical skills. These skills will be reinforced by class assignments in which students will compose coherent sentences, paragraphs, and short essays. Successful completion of this course is a prerequisite for all other online ESL and liberal arts classes

This class has no prerequisites.

### Student Outcomes

Scan text for specific information.

Read and comprehend simplified materials on art and design-related topics.

Interpret vocabulary based on context.

Use pre-writing, drafting, and revision strategies effectively.

Complete a compare/contrast analysis of art for the online ESL exit exam

### Sample Syllabus

Module 1	Orientation to ESL 10
Module 2	Types of Art
Module 3	Introduction to Elements of Art

## ESL ٠٠٣-OL: English for Art Purposes ٣

Department: English as a Second Language

### Course Description

This is a high-level intermediate ESL course that provides an in-depth review emphasizing oral presentation, descriptive essay development, art terminology and language skills relevant to artists and designers. Students who register for ESL ٠٠٣ should register for ESL-designated art classes.

### Student Outcomes

Comprehend authentic materials on art and design-related topics

Use various strategies to determine the meaning of new words

Respond to art and design related prompts using expanded vocabulary

Write a coherent short essay using a variety of sentence styles

### Sample Syllabus

Module ١	Orientation to ESL ٢٠
Module ٢	Fine Art
Module ٣	Industrial Design

## ۳ شرح اجمالی برنامه مورد اجرا در دانشگاه Swinburne استرالیا:

### ۳.۱ توضیح اجمالی برنامه:

#### ۳.۱.۱ کارشناسی چند رسانه ای:

دوره کارشناسی چندرسانه ای برای شرکت دانشجویان با پیشینه تحصیلی آموزش متوسطه مانند دیپلم متوسطه و یا مدارک معادل آن طراحی شده است. این دوره متخصصین چندرسانه ای را از شاخه های مختلف از قبیل مطالعه رسانه، تجارت و بازرگانی، شبکه های رایانه ای و فناوری اطلاعات با یکدیگر پیوند می دهد.

#### ۳.۲ ساختار دوره:

این برنامه یک برنامه آموزشی به ارزش یکصد واحد درسی و به صورت تحصیل تمام وقت ارائه می گردد. یک واحد درسی به معنی ۱ ساعت فعالیت دانشجو در طول تمامی هفته های ترم بوده که این می تواند در ارتباط با کادر علمی دانشگاه باشد و یا به صورت مطالعه انفرادی. به طور متوسط هر دانشجو در هر هفته باید ۱۵ ساعت زمان به این برنامه اختصاص دهد. کلیه زمانهای اختصاص داده شونده توسط دانشجو در هر هفته از قبیل زمانهای کلاسها، شرکت در سخنرانی ها، شرکت در کارگاه ها بسته به ترم جاری متفاوت بوده به طور کلی از ۲۰ ساعت در هر هفته تجاوز نمی کند. دانشجویان می توانند در یکی از سه گروه اصلی به تحصیل مشغول گردند:

۱- مطالعات محوری چندرسانه ای

۲- مطالعات آینده چندرسانه ای

۳- مطالعات بین گروهی انتخابی (مشترک با سایر گروههای طراحی)

دانشجویان در دوره کارشناسی حداقل یکصد واحد درسی از گروه یک را گذرانده و در ادامه تحصیلات واحدهای گروه های دیگر را انتخاب خواهند نمود.

زمینه های آموزش و پژوهش در این دانشکده به شرح ذیل می باشند:

- ارتباطات موثر
- برپایی و هدایت یک فعالیت حرفه ای
- فرهنگ و مطالعات زبان
- بازرگانی در مقیاس کلان
- چندرسانه ای- طراحی وب
- مدیریت دانش و رویکرد علمگرا
- مهارت های تحقیق کارشناسی
- طراحی: فرایند و استراتژی
- اقتصاد شبکه های رایانه ای

### ۳.۳ لیست دروس ارائه شونده:

#### کاردانی چند رسانه ای

کد درس	عنوان درس
HAM113	فعالیت ارتباطات حرفه ای
HDMD101	طراحی برای چندرسانه ای ۱
HET113	اینترنت و شبکه جهانی ۱
HET213	طراحی تجربه گرا
HET215	عملکردهای چندرسانه ای
HET401	پروژه چندرسانه ای ۱

HET۴۰۲	پروژه چندرسانه ای ۲
HET۴۰۷	فناوری چندرسانه ای
HDMD۱۰۲	طراحی برای چندرسانه ای ۲
HET۱۲۰	طراحی بازی های متعامل
HET۱۲۳	اینترنت و شبکه جهانی ۲
HET۲۰۸	پویانمایی به بعدی و جلوه های ویژه
HET۲۲۲	صوت و تصویر دیجیتالی
HET۳۲۴	تئوری رسانه، DVD و ترکیب
HET۳۲۵	اصول طراحی بازی رایانه ای
HET۳۳۲	چندرسانه ای متعامل
HET۴۳۳	رابط های کاربری چندرسانه ای

### ۳.۴ شرح و سرفصل دروس :

از آنجایی که اطلاعات این بخش در گزارش نهایی این پروژه تاثیر نداشته و صرفاً جهت پردازش در فاز ۲ به کار خواهند رفت این اطلاعات به صورت زبان اصلی ارائه شده اند. جهت سهولت بررسی در فاز ۲ اطلاعات اضافی در مورد درس حذف گردیده و فقط اطلاعات ضروری در مورد تعریف سرفصل، پیش نیاز، تعداد واحد، دانشکده ارائه دهنده درس و نحوه ارزش یابی ارائه شده است.



## Professional Communication Practice

Unit Code: HAM113

Duration	Contact Hours	Campus	Prerequisite	Corequisite
1 Semester	3 Hours per Week	Hawthorn	Nil	Nil

### Credit Points:

12.5 Credit Points

### Related Course/s:

A unit of study in the [Bachelor of Arts](#); [Bachelor of Arts \(Media and Communications\)](#); [Bachelor of Social Science](#) and [Bachelor of Social Science \(Psychology\)](#)

### Aims & Objectives:

With the advent of new communications technologies such as the Internet, the ability to communicate effectively is becoming a key competency across a wide range of professions. This is especially true of fields such as engineering, information technology and the biophysical sciences, whose increased profile now positions them as key strategic components in many business ventures. Practitioners from these fields often find themselves having to communicate highly technical information to people who have little or no expertise in their areas, meaning that clear and precise communications are vital if a productive information flow is to be established.

Professional Communication Practice is designed to equip students with the oral and written communication skills they require to compete in the contemporary marketplace. This is achieved through an exploration of both the theoretical and practical dimensions of modern communications, with an emphasis on developing the skills needed to deal with a wide variety of different communications environments. The content is designed to cater to students from all disciplines and provide them with techniques they can employ throughout their educational and professional careers. The unit is structured around three key areas: Researching, Writing and Presenting, with each designed to complement the others.

### Teaching Methods:

Lectures and Workshops

### Assessment:

Concept Proposal (30%), Communications Analysis (35%), Group

Presentation (૩૦%).

**Generic Skills Outcomes:**

- To develop advanced reading and writing skills.
- To develop analytical and critical thinking skills.
- To develop confidence in different communications situations.
- To develop essay writing skills.
- To be able to write for a range of purposes.
- To develop research skills in both the library as well as the internet and other forums.
- To be able to develop a familiarity with the internet for communication and learning purposes.

**Content:**

The following topics are covered in this unit of study:

- Basic Research Techniques
- Information Acquisition and Organisation
- Resource Evaluation
- Academic Writing Skills
- Writing for a Corporate Audience
- Writing for the Digital Age
- Intercultural Communications
- Effective Presentation Techniques
- Analysing the Media
- Dealing with the Media
- Spin Doctoring

**Design for Multimedia 1**

Unit Code: HDMD101

Duration	Contact Hours	Campus	Prerequisite	Corequisite
One semester	૩ hours per week	Hawthorn	Nil	Nil

**Related Course/s:**

A subject in the Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies), Bachelor of Multimedia (Networks and Computing), Bachelor of Multimedia (Multimedia Software Development), Bachelor of Multimedia and the Bachelor of Multimedia (Networks and Computing)/Bachelor of Engineering (Telecommunications and Internet Technologies).

**Aims & Objectives:**

To develop an understanding of basic design principles and visualisation techniques.

**Teaching Methods:**

Studio (Computer Laboratory) Tuition with Continual Practical Experience through Exercises and Set Tasks

**Assessment:**

Assignments, Folio, Presentations.

**Content:**

- \* Understanding and rehearsing the elementary use of the elements of design: line, shape, form, colour, tone, and texture, as well as primary extensions into pattern, repetition and combination in an electronic environment.
- \* Typography for electronic media.
- \* Elementary integration of design elements into extended 3D environment.
- \* Basic storyboarding, script concept and development.
- \* Layout and visual hierarchy for electronic media
- \* Use of appropriate design software, i.e. Adobe Illustrator.

**The Internet and World Wide Web 1**

Unit Code: HET113

Duration	Contact Hours	Campus	Prerequisite	Corequisite
1 Semester	Average of 12.5 Hours per Week	Hawthorn	Nil	Nil

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the [Bachelor of Multimedia \(Networks and Computing\)](#) / [Bachelor of Engineering \(Telecommunications and Internet Technologies\)](#) [Bachelor of Multimedia \(Business Marketing\)](#), [Bachelor of Multimedia \(Media Studies\)](#), [Bachelor of Multimedia \(Multimedia Software Development\)](#), [Bachelor of Multimedia \(Networks & Computing\)](#) and the [Bachelor of Multimedia](#).

Aims & Objectives:

To introduce the Internet, World Wide Web and associated local and wide-area network issues.

### Teaching Methods:

Lecture, Laboratory-based Exercises and Practical Work

### Assessment:

Assignment 1 (25%), Assignment 2 (25%), Test (10%), Examination (30%),

Lab Attendance & Work (10%).

### Content:

- What is the Internet and how does it work?
- How the World Wide Web operates across the Internet.
- HTML and WYSIWYG web authoring tools.
- CSS and XML.
- Internet tools: Telnet, FTP etc.
- How web browsers work.
- Bandwidth issues and relevant trade-offs.
- Graphics files: size, download times and formats.
- Copyright on the Internet (source code, images, designs etc., use of other work, sampling).
- Website security and intranets.
- Web search technologies and strategies.
- Email.
- Online synchronous and asynchronous communications.

### User Experience Design

Unit Code: HET213

Duration	Contact Hours	Campus	Prerequisite	Corequisite
1 Semester	5 Hours per Week	Hawthorn	Nil	Nil

### Credit Points:

12.5 Credit Points

### Related Course/s:

A unit of study in the [Bachelor of Multimedia](#) suite of programs.

### Aims & Objectives:

HET213 introduces the concept of experience design and its importance in

the design of a variety of digital applications. Often developers overlook the importance of the customer experience when using their products. Consequently, it is becoming increasingly important for companies to provide customers with positive user experiences through fundamentals like navigation, search, usability and identifying the needs of the real user as well as that of the business. The understanding & usability research skills and techniques gained in this subject, along with coverage of important relevant teamwork and project management skills will help students to design effective user environments for a variety of applications from retail websites to computer games.

#### Teaching Methods:

Lectures, Tutorials, Online Delivery

#### Assessment:

Project (80%), Oral Presentation (20%)

#### Generic Skills Outcomes:

The graduate attributes which relate to this unit of study help to produce graduates who:

- Are capable in their chosen professional areas.
- Operate effectively in work and community situations.
- Are adaptable and manage change.
- Are entrepreneurial in contributing to innovation and development within their business, workplace, or community.

#### Content:

- Working in a team / project management.
- Introduction to the User Experience.
- Understanding the Business.
- Understanding the User.
- Effective Branding.
- Effective Information Architecture.
- User Interface Design.
- Prototyping and Documentation.
- Usability research methods and techniques.
- Usability Testing.
- Effective Communication.

Multimedia Applications

Unit Code: HET215

Duration	Contact Hours	Campus	Prerequisite	Corequisite
1 Semester	4 Hours per Week	Hawthorn	Nil	Nil

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the: [\*Bachelor of Multimedia \(Networks and Computing\) / Bachelor of Engineering \(Telecommunications and Internet Technologies\)\*](#), [\*Bachelor of Multimedia \(Business Marketing\)\*](#), [\*Bachelor of Multimedia \(Media Studies\)\*](#), [\*Bachelor of Multimedia \(Multimedia Software Development\)\*](#), [\*Bachelor of Multimedia \(Networks & Computing\)\*](#), and [\*Bachelor of Multimedia\*](#).

Aims & Objectives:

To provide an introduction to the practice of multimedia, by developing appropriate skills with multimedia software.

Teaching Methods:

Laboratory and lecture based tuition with continual practical experience through exercises and set tasks.

Assessment:

Assignment 1 - Interface Design (35%), Assignment 2 - Director Interactive (35%), Written Theory Exam (30%). [↑ TOP](#)

Content:

This unit of study involves an introduction to the practice of multimedia creation using various industry standard software tools.

- Concepts in digital image creation and manipulation.
- Introduction to bitmap and vector graphics.
- Introduction to Multimedia Authoring.
- Introduction to vector graphics animation.
- Principles of animation applied to computer graphics.

Comparison of various multimedia software packages.

### **Multimedia Project 1**

Unit Code: HET401

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the Bachelor of Multimedia (Media Studies), Bachelor of Multimedia (Networks & Computing); Bachelor of Multimedia (Business Marketing) Bachelor of Multimedia and Bachelor of Multimedia (Multimedia Software Development)

**Aims & Objectives:**

To enable the student to acquire practical experience in multimedia technology, operating in a team environment.

**Assessment:**

Project documentation 35%, Presentation 35%, Accountability (supervisor meetings) 20%, Assessor Panel Review 10%.

**Content:**

The multimedia project unit of study is for students in the final stage of the Bachelor of Multimedia course. The project unit is intended to bring together the skills and knowledge acquired/refined during the course, and to further develop these skills and knowledge. Typically, the project will incorporate aspects of project planning and design (preproduction), as well as useability testing and the development of some form of deliverable.

The Bachelor of Multimedia course coordinator maintains a list of possible projects. Projects are normally drawn from this list, although projects outside this list may be possible.

The projects involve group work. The ability to work effectively as part of a team is an important attribute in the multimedia industry, and will be a consideration in the assessment of projects. It is expected that wherever possible each project group will be liaising with an external client. Where necessary, and at the discretion of the course coordinator, an external project adviser may be appointed.

**Multimedia Project 2**

Unit Code: HET402

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the Bachelor of Multimedia, Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies), Bachelor of Multimedia (Networks & Computing) and Bachelor of Multimedia (Multimedia Software Development)

**Aims & Objectives:**

To enable the student to acquire practical experience in multimedia technology operating in a team environment.

**Teaching Methods:**

Project

**Assessment:**

Project documentation 20%, Presentation 20%, Accountability (supervisor meetings) 20%, Final deliverable 30%, Assessor Panel Review 10%

**Content:**

The multimedia project is a unit of study for students in the final stage of the Bachelor of Multimedia course. The project unit is intended to bring together the skills and knowledge acquire/refined during the course, and to further develop these skills and knowledge. Typically, the project will incorporate aspects of project planning and design (preproduction), as well as useability testing and the development of some form of deliverable.

The Bachelor of Multimedia course coordinator maintains a list of possible projects. Projects are normally drawn from this list, although projects outside this list may be possible.

The projects involve group work. The ability to work effectively as part of a team is an important attribute in the multimedia industry, and will be a consideration in the assessment of projects. It is expected that wherever possible each project group will be liaising with an external client. Where necessary, and at the discretion of the course coordinator, an external project adviser may be appointed.

**Multimedia Technology**

Unit Code: HET407

Credit Points:



## 12.5 Credit Points

### Related Course/s:

A unit of study in the Bachelor of Multimedia (Networks and Computing) / Bachelor of Engineering (Telecommunications and Internet Technologies) Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies), Bachelor of Multimedia (Multimedia Software Development), Bachelor of Multimedia (Networks & Computing), and Bachelor of Multimedia.

### Aims & Objectives:

To introduce an overview of the technologies that are essential for multimedia systems.

### Assessment:

Examination (60%), 4 Labs worth a total of 20%, 2 Computer tests worth a total of 20%.

### Content:

Overview of the human senses, particularly vision and hearing  
Colour theory and systems for colour representation  
Audio concepts: amplitude, loudness, frequency, pitch, phase, overtones, harmonics.  
Overview of analog and digital signals  
Sampling – digitizing analog signals, quantization  
Analog video and audio signals  
Image capture technology  
Audio capture technology  
Digital video and audio  
Digital image manipulation  
Digital audio manipulation  
MIDI technology.  
Image compression techniques  
Video compression techniques  
Audio compression techniques  
Introduction to and evolution of computer architecture.  
Internal and external computer interfaces and bus standards  
Data storage technologies.  
Video display technologies  
Audio reproduction technologies  
Virtual reality technology: visual, audio, haptic

## **Design for Multimedia ۲**

Unit Code: HDMD۱۰۲

Credit Points:

۱۲.۵ Credit Points per subject

Related Course/s:

A subject in the Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies), Bachelor of Multimedia (Networks and Computing), Bachelor of Multimedia (Multimedia Software Development), Bachelor of Multimedia and the Bachelor of Multimedia (Networks and Computing)/Bachelor of Engineering (Telecommunications and Internet Technologies).

Aims & Objectives:

To develop an understanding of basic design principles and visualisation techniques.

Teaching Methods:

Studio (Computer Laboratory) Tuition with Continual Practical Experience through Exercises and Set Tasks

Assessment:

Assignments, Foliol, Presentations

Content:

- \* Understanding and rehearsing the elementary use of the elements of design: line, shape, form, colour, tone, and texture, as well as primary extensions into pattern, repetition and combination in an electronic environment.
- \* Typography for electronic media.
- \* Elementary integration of design elements into extended ۲D environment.
- \* Basic storyboarding, script concept and development.
- \* Animation, sequencing and narrative
- \* Introduction of sound: basic audio principles.
- \* Use of appropriate design software, i.e. Adobe Photoshop, Macromedia Flash, Macromedia Director.

## **Interactive Games Structures**

Unit Code: HET120

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the Bachelor of Multimedia (Games and Interactivity) / Bachelor of Science (Computer Science and Software Engineering).

Aims & Objectives:

To introduce students to the fundamental ideas behind both non-electronic and electronic games.

To develop a vocabulary to critically analyse games and game structures.

To explore game narrative and development within an interactive storytelling environment.

To explore concepts of interactivity and player immersion.

Teaching Methods:

Lecture, seminar and tutorial based learning with ongoing practical experience through assignments, research exercises and set tasks.

Assessment:

Game Analysis (40%), Company Profile (30%), Game Concept Pitch (30%)

Content:

This unit of study introduces students to concepts of game-play in both non-electronic and electronic formats. Students will look at the mechanics of writing, storyboarding and developing a work of interactive fiction.

Topics will include:

History of games

Issues of gameplay

Game criticism

Narrative in games

Experiences and experience-centred game-play models

Social issues of interactivity and game-play

Game culture

Genre studies

**The Internet and World Wide Web 2**

Unit Code: HET123

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the Bachelor of Engineering (Telecommunication and Network Engineering), Bachelor of Engineering (Telecommunication and Network Engineering) / Bachelor of Science (Computer Science and Software Engineering), Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies) , Bachelor of Multimedia (Multimedia Software Development), Bachelor of Multimedia (Networks & Computing), Bachelor of Multimedia (Networks and Computing) / Bachelor of Engineering (Telecommunications and Internet Technologies) and the Bachelor of Multimedia.

Aims & Objectives:

HET123 introduces the functionality of Web page programming to achieve greater interactivity of websites and the development of data-driven websites. Several different technologies for Web page programming will be explored, and associated issues examined.

Teaching Methods:

Lectures, Laboratory-based Exercises, Online Delivery

Assessment:

Assignment Part 1 (20%), Assignment Part 2 (10%), Assignment Part 3 (20%),

Test (10%)

Examination (30%), Lab Attendance & Work (10%).

Content:

Website design and usability principles.

Basic programming concepts.

HTML and forms.

DHTML concepts.

Web authoring software (Dreamweaver).

Basic database structure and design, including SQL.

Document object model.

Client-side Web scripting (Javascript).

Server-side Web scripting (ASP).

Unix basics.  
NT server basics.  
Web security issues.

## **3D Animation and Special Effects**

Unit Code: HET208

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies), Bachelor of Multimedia (Networks & Computing), Bachelor of Multimedia (Multimedia Software Development), Bachelor of Multimedia, and Bachelor of Multimedia (Networks and Computing) / Bachelor of Engineering (Telecommunications and Internet Technologies).

Aims & Objectives:

To give students an overview of key concepts and production techniques.  
To provide an introduction to the creation and animation of objects using a popular 3D package.

To provide insight into the art and business of the 3D industry.

Teaching Methods:

Lectures, studio (computer laboratory), tuition with practical experience through exercises and set tasks.

Assessment:

Concept design (15%), Visualisation exercise (20%), Project in-progress (25%), Final Project (40%)

Content:

This unit provides an introduction to 3D modelling and animation using a commercial 3D graphics application. The practical component of the course will take the student through the steps required to create and animate objects, apply materials, lighting and other effects. The lecture series will cover the following topics:

Fundamentals of 3-dimensional graphics and core concepts.

Project planning, storyboarding and pre-production.

Primitives and object topology.

Modifying objects and modelling techniques.

Shaders, texturing and materials.

Lighting, environment and atmospheric effects.

Basic keyframed and procedural animation.

Particles and space warps.

Rendering and post effects.

Network rendering and management.

The business of 3D.

## **Digital Video and Audio**

Unit Code: HET222

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the Bachelor of Multimedia suite of programs.

Aims & Objectives:

HET222 introduces the concept of non-linear video and audio editing using digital video and audio technology. It will equip students with the basic skills required to capture and edit video and audio material, and to master to a variety of formats, including videocassette, CD and streaming formats for the WWW.

Teaching Methods:

Lectures, Laboratory Sessions

Assessment:

Computer-Based Test (20%), Discussion Threads (10%), Ten Labs worth a total of 20%, Three Assignments worth a total of 50%.

Content:

Storytelling tools.

Video technology.

Camera & lighting skills.

Videos capture.

Video editing.

Titles and credits.

Production planning.

Scriptwriting and storyboarding.

Production design.

Production estimation and timelines.

Advanced editing and FX.

Advanced audio and sound FX production.

Internet video.

Digital audio theory & physics of sound.

Audio recording and playback.

Random access / non-destructive editing.

Digital signal processing.

Audio file formats and compression.  
Internet audio.  
Digital audio disk and tape media.

## **Media Theory, DVD and Compositing**

Unit Code: HET324

Credit Points:

12.5 Credit Points

Related Course/s:

A unit of study in the Bachelor of Arts (Games and Interactivity), Bachelor of Multimedia (Games and Interactivity) / Bachelor of Science (Computer Science and Software Engineering), Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies) and Bachelor of Multimedia.

Aims & Objectives:

HET324 aims to give students a mixture of practical and theoretical knowledge about narratives, video editing, compositing and DVD authoring. An understanding of narrative and editing theory will assist students as they create stories using cinematic language appropriate for the Multimedia Industry. Blue screen keying and special effects will be used to introduce students to video compositing and motion graphics. This unit also introduces students to DVD interface design and authoring.

Teaching Methods:

Lectures, Laboratory classes, Online Delivery

Assessment:

Group Short Video (20%), Solo Short Video (25%), Solo DVD Interface (25%), Three Group Presentations worth 10% each (30%)

Generic Skills Outcomes:

The graduate attributes which relate to this unit of study help to produce graduates who:

Are capable in their chosen professional areas.

Are adaptable and manage change.

Operate effectively in work and community situations.

Graduates are aware of environments.



**Content:**

Narrative Theory – the three act play structure

Narrative Theory – alternative structures

Narrative Theory – the scene

Narrative Theory – characterisation

Editing Theory – history

Editing Theory – current styles

Editing Theory – genres

Blue Screen Effects

Video Compositing and Motion Graphics

DVD Formats

DVD Audio

DVD Interface Design

DVD Authoring

**Principles of Game Design**

Unit Code: HET३२९

**Credit Points:**

१२.९ Credit Points

६ Hours per Week

**Related Course/s:**

A unit of study in the Bachelor of Arts (Games and Interactivity), Bachelor of Multimedia (Games and Interactivity) / Bachelor of Science (Computer Science and Software Engineering), Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies) and Bachelor of Multimedia.

**Aims & Objectives:**

To develop an understanding of the design and development of multimedia games.

To introduce a range of game principles and methodologies.

To explore notions of narrative, storyboard, character and visual literacy particular to game playing milieux.

To introduce students to game programming fundamentals.

**Teaching Methods:**

Laboratory based tuition with continual practical experience through exercises and set tasks.

Assessment:

Game Design Evaluation (۳۵%), Reading Journal (۳۰%), Final Exam (۳۵%).

Generic Skills Outcomes:

The graduate attributes which relate to this unit of study help to produce graduates who:

Are capable in their chosen professional areas.

Are entrepreneurial.

Are adaptable and manage change.

Operate effectively in work and community situations.

Content:

Principles of Game Design introduces students to the fundamentals of designing electronic games. Students apply previously developed skills to the design and implementation of a game of their choice through various projects. Students will be introduced to programming and basic interactive design for Multimedia games during the semester through laboratory-based assignment work.

Game rules and play mechanics.

Development and evaluation of game concepts.

Game theory.

Assessment and selection of game platforms.

Visual literacy and communication.

Learning curves, game addiction and longevity.

Spatial and Interface design.

Artificial Intelligence, Avatars and control schemes.

User-testing and User Analysis.

Audio design.

The Business of gaming.

**Multimedia Interfaces**

Unit Code: HET۴۳۳

Credit Points:

۱۲.۵ Credit Points

Related Course/s:

A unit of study in the Bachelor of Multimedia (Games and Interactivity) / Bachelor of Science (Computer Science and Software Engineering).

Note: This unit of study will be offered from 2018.

**Aims & Objectives:**

To develop an understanding of the design and development of multimedia interfaces.

To introduce a range of interface design principles and methodologies.

To explore the theory of interface structure, composition and utilisation.

To introduce students to human factors in interface design.

To explore the implementation of game design and gameplay principles within non-games interfaces.

**Teaching Methods:**

Lecture and tutorial based tuition with continual practical experience through assignments, research exercises and set tasks.

**Assessment:**

Laboratory work (20%), Assignments (80%).

**Content:**

Multimedia Interfaces introduces students to the fundamentals of designing interfaces for interactive multimedia, with particular emphasis on accessible, ubiquitous, engaging and immersive interfaces. Students will examine a range of interface methodologies and practices through research and practical study. Topics will include:

History of interface design.

Interactive interface design techniques.

Human factors in interface design.

Interface design for different platforms and applications.

Cognition and mental models in interface design.

Creating immersive interfaces.

Using game design principles for non-game interface design.

**Interactive Multimedia**

Unit Code: HET332

**Credit Points:**

12.5 Credit Points

Related Course/s:

A unit of study in the: Bachelor of Multimedia (Networks and Computing) / Bachelor of Engineering (Telecommunications and Internet Technologies) Bachelor of Multimedia (Business Marketing), Bachelor of Multimedia (Media Studies), Bachelor of Multimedia (Multimedia Software Development), Bachelor of Multimedia (Networks & Computing), and the Bachelor of Multimedia.

Aims & Objectives:

To extend multimedia development and production skills to a professional level.

Teaching Methods:

Laboratory based tuition with continual practical experience through exercises and set tasks.

Assessment:

Flash interface assignment (۲۰%), Flash game assignment (۴۵%), Test (۱۰%), Examination (۲۵%).

Content:

Thorough understanding of the strengths of different authoring environments.

Basic understanding of software and programming issues in multimedia.

Advanced scripting techniques for web-based multimedia.

Advanced scripting techniques for CDROM multimedia development.

Understanding programming standards, naming conventions and syntax.

Working with predefined and custom objects.

Debugging in different authoring environments.

Developing game concepts.

Packaging your software.

**Professional Communication Practice**

Unit Code: HAM۱۱۳

Credit Points:

۱۲.۵ Credit Points

۳ Hours per Week

Related Course/s:

A unit of study in the Bachelor of Arts; Bachelor of Arts (Media and Communications); Bachelor of Social Science and Bachelor of Social Science (Psychology)

#### Aims & Objectives:

With the advent of new communications technologies such as the Internet, the ability to communicate effectively is becoming a key competency across a wide range of professions. This is especially true of fields such as engineering, information technology and the biophysical sciences, whose increased profile now positions them as key strategic components in many business ventures. Practitioners from these fields often find themselves having to communicate highly technical information to people who have little or no expertise in their areas, meaning that clear and precise communications are vital if a productive information flow is to be established.

Professional Communication Practice is designed to equip students with the oral and written communication skills they require to compete in the contemporary marketplace. This is achieved through an exploration of both the theoretical and practical dimensions of modern communications, with an emphasis on developing the skills needed to deal with a wide variety of different communications environments. The content is designed to cater to students from all disciplines and provide them with techniques they can employ throughout their educational and professional careers. The unit is structured around three key areas: Researching, Writing and Presenting, with each designed to complement the others.

#### Teaching Methods:

Lectures and Workshops

#### Assessment:

Concept Proposal (۳۰%), Communications Analysis (۳۵%), Group Presentation (۳۵%).

#### Generic Skills Outcomes:

To develop advanced reading and writing skills.

To develop analytical and critical thinking skills.

To develop confidence in different communications situations.

To develop essay writing skills.

To be able to write for a range of purposes.

To develop research skills in both the library as well as the internet and other forums.

To be able to develop a familiarity with the internet for communication and learning purposes.

Content:

The following topics are covered in this unit of study:

Basic Research Techniques

Information Acquisition and Organisation

Resource Evaluation

Academic Writing Skills

Writing for a Corporate Audience

Writing for the Digital Age

Intercultural Communications

Effective Presentation Techniques

Analysing the Media

Dealing with the Media

Spin Doctoring

### ۴.۱ مدرسه هنرهای تعاملی و فنآوری

#### ۴.۱.۱ تاریخچه

مدرسه هنرهای تعاملی و فنآوری کانادا از زمان ادغام دانشگاه تکنولوژی بریتیش کولومبیا با دانشگاه سیمون فاسر تاسیس گردیده است. در حال حاضر این مدرسه با جذب ۸۰۰ نفر دانشجوی کارشناسی و ۸۵ نفر دانشجوی تحصیلات تکمیلی به کار خود ادامه می دهد. دانشگاه SIAT در نظام آموزش عالی کانادا به صورت مستقل عمل نموده و در سطح جهانی از همکاری شریکانی چند بهره میگیرد.

#### ۴.۲ چشم انداز کلی

بدون شک طراحی یکی از مقوله های پرطرفدار در جهان به شمار می رود. جهانی شدن کشورهای پیشرفته را به سمت ایجاد استراتژی های ارتقا یافته در زمینه اقتصاد سوق می دهد. محصولات، سیستمها و محیط های مصنوع روز به روز در حال تغییر و پیچیده شدن می باشند. انسان و رایانه با ایجاد تعامل فی مابین برای پایداری بیشتر تلاش می نمایند. مردم طالب تکامل سیستمها و محصولات مصرفی خود می باشند. اینها دلایلی هستند که در کنار دلایل دیگر ضرورت فهم، مدیریت و تمرین و ارتقای سطح هنری و احساس لزوم جهت تغییر سیستم موجود هنر را به اثبات می رسانند. درک این مسئله ساده به نظر میرسد مه طراحی از میان تمامی نظامهای موجود در جهان خود را متمایز نموده و نظامهای خاص خود را می طلبد. سیستم آموزشی میان رشته ای جدید مدرسه هنرهای تعاملی و فنآوری در نظر دارد ایده های عمومی و اصلی طراحی، ویژگی ها و مهارتهای لازم برای کارهای گروهی و تخصص های طراحان در زمینه های علمی معین را ارتقا بخشد. در طی ۵ سال گذشته ما ساختاری را ایجاد کرده ایم که از مراحل ابتدایی آموزش، نسل جدیدی از طراحان را پرورش دهد که برطرف کننده نیازهای یاد شده باشند.

این برنامه مشخصاً بین رشته ای بوده و دانشکده های مختلف و دانشجویان با زمینه های علاقمندی متنوع را به یکدیگر پیوند می دهد. این برنامه هنر، طراحی و فناوری را به هم وصل می نماید.

### ۴.۳ اهداف برنامه

این برنامه ۲ هدف اصلی را دنبال می نماید:

- ۱- کشف، فهم، ارزیابی منتقدانه رابطه موجود میان فناوری و جوامع انسانی
- ۲- تغذیه، توسعه و طراحی فناوری های جدید برای انتفاع جامعه

### ۴.۴ فلسفه برنامه

عوامل متنوعی این برنامه را از برنامه های سنت گرای هنری ارائه شده در دانشکده های دیگر متمایز می نماید. مشخصاً ما روی جنبه های فناوری (انتفاعی-کیفی) و جنبه های انسانی (تفکر-اجتماع-فرهنگ) موضوع تاکید داریم. با توسعه و برپایی این برنامه انتظار می رود کاربران به یک تعامل سازنده جهت ارتقای هنر جدید دست یابند. علاوه براین این برنامه یک سیستم نظام مند برای نیل به اهداف ترکیبی شامل عملکرد، کاربرد، کیفیت و تجربه ایجاد نموده است. ما علاقمندیم هنرمندانی تربیت نماییم که این هنرمندان در خور جوامع مخاطب خود بوده و ارتباط عمیق میان تئوری و عمل را کشف نموده باشند. فاکتور تاثیر گذار دیگر در این میان ساختار منحصر به فرد این برنامه آموزشی است که در واقع این برنامه آموزشی سعی دارد هماهنگ با فناوری روز که به طرز خیره کننده ای جهان را مورد تغییر خود قرار داده است، سیستم سنتی آموزش و پژوهش هنر را دستخوش تغییر قرار دهد.

### ۴.۵ فرصتهای شغلی دانش آموختگان:

فرصتهای اجتماعی و شغلی دانش آموختگان این رشته عبارتند از:



صنعت تبلیغات - طراحی بسته های آموزشی - آموزش - یکپارچه سازی سیستمهای ارتباط از راه دور - شبکه های رایانه ای - شبکه های آن لاین با پهنای باند بالا - صنایع سرگرمی آن لاین - طراحی و اجرای سیستمهای یکپارچه رایانه ای و اطلاع رسانی در شبکه های جهانی - طراحی بازی های ویدئویی

## ۴.۶ لیست دروس ارائه شونده:

### مدرسه هنرهای تعاملی و فناوری

عنوان درس	کد درس
سیستمهای ارائه چندرسانه ای	IAT ۱۰۰
تفکر در علوم طراحی	<u>IAT ۲۰۰-۳</u>
شماهای فرهنگی و هنرهای مردمی	IAT ۲۰۳-۳
رسانه از میان فرهنگها	<u>IAT ۲۰۶-۳</u>
ترسیم به عنوان یک ضرورت	<u>IAT ۲۰۸-۳</u>
تفکر منتقدانه و خلاقانه	IAT ۲۰۹-۳
طراحی برای محیط های دیجیتال	IAT ۲۳۰-۳
تعامل و تجسم بصری	IAT ۲۳۱-۳
تعامل صوت	IAT ۲۴۳-۳
عکاسی دیجیتالی ۱	IAT ۲۴۴-۳

IAT۲۶۱-۳	پردازش فضایی
IAT۲۶۵-۳	برنامه نویسی چند رسانه ای
IAT۳۰۱-۳	طراحی رسانه متعامل
IAT۳۰۲-۳	تفکر در فضاهای متعامل
IAT۳۱۳-۳	روایت گری و رسانه جدید
IAT۳۲۱-۳	فضای جنبشی
IAT۳۲۲-۳	موضوعات زمان حاضر، ارائه و رسانه جدید
IAT۳۲۳-۳	برپایی متعامل و کیفیت
IAT۳۳۱-۳	ادراک و تعامل
IAT۳۳۲-۳	ارزیابی طراحی
IAT۳۳۳-۳	مبانی طراحی متعامل - شیوه ها و روشها
<u>IAT۳۳۸-۳</u>	پروتوتایپ متعامل
<u>IAT۳۴۲-۳</u>	استودیو طراحی تصویر متحرک
<u>IAT۳۵۱-۳</u>	فناوری تعامل
IAT۳۵۳-۳	استدیو طراحی انسان محور ۱
<u>IAT۳۵۴-۳</u>	استدیو طراحی انسان محور ۲

IAT۳۴۹-۳

کارگاه طراحی متعامل ۲

IAT ۳۱۲

مبانی طراحی بازی های رایانه ای

IAT ۳۳۵

آنالیز وضعیت طراحی

IAT ۳۴۰

طراحی صوتی تجربی

IAT ۳۵۲

رسانه علوم

IAT ۴۵۱

طراحی محیط های حاضر در همه جا

IAT ۴۱۲

استدیو طراحی: پردازش حاضر در همه جا، قابل حمل و

قابل پوشش

IAT ۴۳۰

پژوهش طراحی

IAT ۴۵۴

استدیو تکامل طراحی انسان محور

IAT ۴۴۳

استدیو رسانه: تصویر، صوت و حرکت

IAT ۴۴۵

محیط های غوطه ور

## ۴.۷ شرح و سرفصل دروس :

از آنجایی که اطلاعات این بخش در گزارش نهایی این پروژه تاثیر نداشته و صرفاً جهت پردازش در فاز ۲ به کار خواهند رفت این اطلاعات به صورت زبان اصلی ارائه شده اند. جهت سهولت بررسی در فاز ۲ اطلاعات اضافی در مورد درس حذف گردیده و فقط اطلاعات ضروری در مورد تعریف سرفصل، پیش نیاز، تعداد واحد، دانشکده ارائه دهنده درس و نحوه ارزش یابی ارائه شده است.

### **IAT 100**

#### **Systems of Media Representation**

This course will serve as an introduction to the fundamental elements and principles of design and build a foundation for visual and aural literacy. Students will explore media based arts through hands-on studio practice, which will include both digital and analog ways of working. Through weekly exercises that focus on learning through historical precedents, students will develop the basic technical and conceptual skills for production and critical engagement in the SIAT program. These exercises will culminate in a final single work, reflecting the student's progress and personal area of interest.

In this course students will begin to question what it means to be a digital artist. They will be asked to critically explore the computer as a medium for creativity and artistic expression. This course is an introduction to the logic of formal representation and creative audio-visual thinking that are fundamental to understanding the computer's role in the future of art and design.

### **IAT 200**

#### **Cognition for Design Science**

The course provides an introduction to cognitive and perceptual processes as foundation to the design of virtual environments for work, learning and play. Students will use problem-solving and collaborative methods to explore a series of design cases on topics in cognitive science. The course will introduce issues of how individuals think, model, and perceive; how groups perceive and collaborate; and how these compare to, and differ from, machine cognition. Drawing liberally from theories in psychology, neuroscience, linguistics, philosophy, sociology, computer science and education, the course emphasizes a multidisciplinary approach to design applications

### **IAT 203**

#### **Cultural Icons and Popular Arts**

An introduction to the interdisciplinary field of cultural studies and the

historical backdrop of popular arts. Students investigate early sacred imagery, royal spectacle, the rise of museums, world expositions as well as traditions in which artistic practice are incorporated into everyday life. Through discourse analysis, students explore how the emergence of photography and an international avant-garde influence narratives around cultural production. With the advent of television and film, popular arts gather momentum and prominence. Finally, students examine the growing interpenetration of marketing, entertainment, and art, as reflected in key areas of practice, including popular music and anime.

#### **IAT ۲.۸**

##### **Drawing as Inquiry**

This course presents an overview of the various forms and languages of drawing as both a critical and creative research tool. Activities and projects in each unit offer opportunities to understand and apply drawing as a medium for visual thinking and conceptualization. Students will first learn perspective rendering techniques through studies of architectural forms and spaces. Building upon this foundation, students will then apply these fundamental skill sets to the representation of human forms and identities. An overview of anatomical structures and proportions will prepare students for pursuits in character animation and storyboarding. Related social and gender concerns are investigated to contextualize figurative representations within a broader cultural framework.

The final component of this course addresses drawing in the context of a digital environment. Students will transfer their knowledge of traditional drawing techniques to computer imaging software and hardware. This shift affords students the opportunity to begin explorations in time-based media and two-dimensional animation.

#### **IAT ۲.۹**

##### **Critical and Creative Thinking**

Identifies characteristics of critical thinking and innovative and creative

thinking, and develops a framework for discussing and understanding concepts of knowing, questioning, and developing and presenting ideas. Students learn to build an argument through rhetorical methods, explore the history and formulation of criticism, develop and formulate questions as a mechanism for constructing and supporting concept building. Students will explore the characteristics of innovation and creativity, including the importance of informational mediaries such as "opinion leaders" and "change agents".

### **IAT ۲۳۰**

#### **Design and Digital Environments**

Communication Design is used as a medium through which to introduce design process, design methods, and the relationship of experience to emergent interaction design thinking and problems. Projects are applied, but grounded in historical context and focus on design as a language-based activity. The course builds from simple graphic image and communication problems to grounded brand experience and marketing issues, to urban-scale issues and site considerations.

In the information age, it is essential to know the difference between data and information. Data does not communicate. Anything that is designed, from a poster to a building communicates. This course begins a longer study of how. Projects are applied studies of history and theory leading to new approaches to designing for experiences, not merely designing things. The initial focus of the course is on graphic or communication design, first in print, then in web and motion. These studies lead to a foundation for approaching more complex problems and the course ends by looking at ۳ major studies that involve, first; urban studies, architecture and exhibition design and the integration of computing and information technologies into such spaces, and then, secondly; a study of brand experience as way of introducing the client and the audience into the nowemerging student understanding of the centrality of design process in the act of designing, and finally, the relationship of design forms, or patterns, into that complex human-centered mix.

### **IAT ۲۳۱**

## **Visualizing Interaction**

Visualizing Interaction explores the theory and development of visual thinking and communication skills that students will require to investigate and communicate the dynamics of interaction. Students will be introduced to a range of rapid visualization techniques including 2-d and perspective sketching, schematic representation, information graphics, visual explanations and storyboarding through a progressive series of visualization projects.

## **IAT 243**

### **Sound Interaction**

An introduction to the acoustic and psychoacoustic properties of our sense of space as provided by sound and their digital mediation. Recording, editing and interactive audio design are introduced and used for the composition of audible spatial environments. Students learn the theory and practice of sound as it interacts with visible images and explore fundamental audio techniques for interactive audio-visual presentation.

## **IAT 244**

### **Digital Photography I**

An introduction to digital photography and photographic image modification through the use of computer technology. Students will build skills and techniques in digital photography and image processing for digital printing, the web, and interactive multimedia. Emphasis is placed on acquiring digital photographic skills based on proficiency through the appropriate use of software and image editing tools. Image formatting possibilities are investigated, along with aesthetic/functional aspects of site navigation, design, sequence and consistency.

## **IAT 260**

### **Multimedia Programming for Art and Design**

This is a second programming course that covers practical and advanced programming concepts in the context of multimedia software. Students will explore fundamental programming issues applied to the use and representation of sound, graphics, animation, and text. They will be introduced to the key

ideas of event-driven programming and object-oriented programming using primarily Python and Flash as the programming languages, and will work with sophisticated programming aids such as integrated development environments, and graphical prototyping systems. The basics of user-centered software design will be introduced, along with the use and design of large code libraries (e.g. OpenGL).

### **IAT 3.1**

#### **Interactive Media Design**

Covers physical interaction design and machine perception techniques useful in the design of audiovisual media display systems, physical installations, and mediated performance. Principles of physical interaction are explored through projects in interactive media. Readings, discussion and writing are conducted in critical issues in the historical development of interactive media including the poetics of site, space, time and technology.

### **IAT 3.2**

#### **Cognition in Interaction Environments**

Examines aspects of cognitive science that can inform the design and testing of this large and growing class of interfaces: VR, AR, ambient intelligence/ubiquitous/mobile computing, public and situated displays, etc. These methods extend HCI to explore a complex systems approach to high-bandwidth human computer interaction design.

### **IAT 3.3**

#### **Narrative and New Media**

Explores the role of narrative in various media and New Media environments: both traditional linear environments and multi-linear and networked media environments. Examines the relationship of narrative elements in the light of the practice and the aesthetics of New Media. It will include an overview of New Media theorists such as Janet Murray or Lev Manovich.

### **IAT 3.4**

#### **Kinesthetic Space**

Takes an embodied approach to design and artistic practices. An understanding



of kinesthesia and kinesthetic methodologies is introduced by combining theory and practice. Students use their bodies as starting points for understanding the logic of artistic, social and architectural space, plus the space of signs and devices. Their projects are based on enhanced or transformed physical and perceptual awareness, and are complemented by theoretical discourse in the area of dance, cyborg theory, architecture and technologically mediated space. Classes are part seminar and part physical workshop.

### **IAT ۳۲۲**

#### **Issues in Performance and Media Arts**

Addresses current topics relating to performance and media arts in the context of Interactive Arts and Technology. Practices and conceptual frameworks from academic and professional worlds of interactive art will be examined. Students will read, conceptualize and articulate debates based on their own developing interactive arts practices.

### **IAT ۳۳۱**

#### **Interaction & Reception**

Audience-driven interaction design issues are introduced through applied projects integrating sub-cultural theory, Marketing and demographic research as well as Information design modeling within the context of the knowledge economy. Students expand their communication design knowledge, skills and abilities with increasingly complex and ill-defined design problems. A capstone project integrates diverse theory into an interaction design proposal that begins from a specific audience and is tested within it to propose meaningful interactions for the individual user and the cultural groups to which they belong.

### **IAT ۳۳۳**

#### **Interactive Design Praxis: Practice and Methods**

Examines concepts of design practice and related design methods for interaction designers. Students will be introduced to concepts of practice such as reflective practice. Students will review a wide range of methods focused on

conceptualization, use experience, situated use. These include pattern language, prototyping, scenarios, role-playing and enactment, body/mind storming, design games, design happenings, participatory design and the use of workshops. In addition to readings, students will engage in exploratory design method projects.

#### **IAT 338**

##### **Analysis of Design Situations**

Develops programming and scripting skills for developing combined software, and hardware prototype versions of interactive products and systems. Emphasizes high level programming skills such as MAX and Flash in conjunction with hardware/sensor systems that enable students to develop working prototypes of their projects for design and testing. Types of programming projects will include software, interactive systems, network and web-based systems, wearables, and mobile devices.

#### **IAT 342**

##### **Animated Image**

Introduces non-programming advanced 3D computer animation techniques. The course mixes 1) hands-on studio-based projects and 2) a non-technical survey of computer animation research areas. The studio track culminates in a team-based animation project where students use their 3D animation skills and artistic knowledge to create a linear or interactive project such as a short film, 3D world, or interactive game or visualization. The conceptual track surveys current research topics in computer animation such as facial animation, behavioral animation, artificial life and interactive systems.

#### **IAT 351**

##### **Interaction Technology**

Key areas of technology for supporting user interaction with systems in work, learning and play are introduced, employing tactile, aural, and visual senses of

humans. Technologies used in sensors and actuators for robotic systems are reviewed for their applicability to user-centred interaction.

#### **IAT ३०३**

##### **Human Centered Design Studio I**

Develops the ability to work in a variety of human-centred system development roles, to understand and be able to deploy a range of technology and interface types, and to begin a process of maturation as designers of human-centred systems. The pedagogical structure of these courses is student engagement in a design case and formal instruction in needed material relevant to the design case.

#### **IAT ३१६**

##### **Interaction Design Workshop II**

An optional fourth course and directed study. Participants must receive approval for their topics from the Field School instruction team prior to departure to Italy. Students can work individually or in teams on research or applied projects. Research must contribute to the ongoing ItaliaDesign repository. Projects focus on furthering knowledge of Italian Design and Innovation practices and extending the course concepts.

#### **IAT ६००**

##### **Graduation Studio**

Students work in teams or individually to develop and evaluate an artistic or product-based design addressing a complex problem. The actual design problems addressed vary from year to year and relate to current social and technological issues in society as well as students' interests and affinities. The course covers the entire spectrum of the production process as it relates to the fine arts and design from problem definition to prototype and a broad range of perspectives including market feasibility, manufacturing, life-cycle implications, usability and social reception.

#### **IAT ६०१**

##### **Electronic Culture**

Explores the dynamics of networked culture, and related tools and practices emerging on the World Wide Web. Students study scientific models of emergence, networks, and complexity, and use them to investigate networked social forms and the cultures that surround them. These include the subcultures of wikis, weblogs, and open source, and networked authoring tools and skills associated with them. Research extends to broader societal trends including the accelerating pace of change, disruptive technologies, “smart mobs,” netwar, and “netdemocracy.” Software diagramming tools are used to visualize and investigate networks and complex systems.

#### **IAT 410**

##### **Advanced Game Design**

Students will design and develop a variety of electronic games, culminating in an advanced game project. They will continue to analyze the experience of play within the game, and the connections between the game experience and broader cultural phenomena.

#### **IAT 411**

##### **Design Studio: Ubiquitous, Mobile, & Wearable Computing**

Focuses on the design, fabrication and testing of prototype interactive products and systems. The thematic investigation will change each year and will focus on topics central to evolving developments in ubiquitous, mobile and wearable computing. Students will be expected to produce operational prototypes for testing and evaluation.

#### **IAT 422**

##### **Wearing Technologies: Fabricating Experience Studio**

Provides a context for students to extend their performance and media arts training into the area of wearable technologies and mobile computing. With distinct art and body perspectives, explores the sensual and expressive dimensions of designing ‘smart’ garments that translate aspects of embodied experience. Fashion and the idea that wearables are a ‘second skin’ will be

central to the course. The course will combine conceptual and technical research into mobile wearable computing, with research into artists working specifically with fabrics, textiles and physical gestures. Methodologies that integrate experimentation with materials, development of technical specifications, and the crafting of physical experiences will be explored.

#### **IAT 443**

##### **Media Studio: Image, Sound, and Motion**

An intermediate level investigation of interactivity explored through media, in the context of current display technologies relevant to Interactive Arts and Design. Examines the computational and compositional structures related to image, sound and video, including 3D animation. Students explore real-time interaction and representation within a range of display scales ranging from cell phone, PDA to larger scale displays such as CAVE environments. Students will design, produce and critically appraise works within responsive interactive environments. Project context could vary from mobile locative media to immersive VR spaces.

#### **IAT 452**

##### **Design Environments**

Examines how people work with computers to do design tasks and how design environments can be designed and adapted to better support design work. Covers the structure of design tasks, how computers support design, the architecture of systems that support design work and gives practical experience in changing design systems to better serve given tasks. Uses contemporary design systems such as games authoring environments, drawings systems and parametric design systems as examples.

#### **IAT 453**

##### **Human Centered Design Studio III**

Focuses on the acquisition of relevant knowledge and skill in designing, implementing and evaluating human-centered systems. Each of the four Design Studio courses has a similar structure: workshops around key issues arising in

the particular human-centered system being designed and a semester-long project with multiple milestones as the primary assessment device.

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### **IAT 2.1**

#### **Usability in Interactive Environments**

This course explores the theoretical foundation, philosophy and practical application of techniques for analyzing how people interact with designed environments covered by the 4 IAT streams, including performance environments, human systems, new media, etc. A major goal is to determine how these environments should be designed to suit human capabilities. Students will engage in simple empirical usability studies in conjunction with active research projects within SIAT to gain experience in current usability practice.

Topics covered will include: History of usability engineering; theoretical foundations of formative and summative usability analysis; taxonomies of user products and environments; analyzing users and their needs; approaches to evaluation of usability; understanding users: cognitive aspects; understanding users: social aspects; user models and task models; metaphor and analogy in usability design; mental models.

### **IAT 2.4**

#### **Encoding Media Practice**

This course introduces programming new media programming techniques using a visual dataflow language suitable for the rapid prototyping of media systems. Programming techniques are explored within the task environment for various individual and integrated media such as music, speech, animation, 3D graphics and their performance. An approach to the performative aspects of programming is developed through a series of composition and design projects in software across media.

### **IAT 2.6**

## **Media Across Cultures**

A critique of current approaches to media and the design of cultural interfaces. Cultural differences in art, design and communication are examined and related to current trends in new media. Culturally appropriate alternatives to ethnocentric norms are explored through creative media projects.

## **IAT 208**

### **Drawing as Inquiry**

This course presents an overview of the various forms and languages of drawing as both a critical and creative research tool. Activities and projects in each unit offer opportunities to understand and apply drawing as a medium for visual thinking and conceptualization. Students will first learn perspective rendering techniques through studies of architectural forms and spaces. Building upon this foundation, students will then apply these fundamental skill sets to the representation of human forms and identities. An overview of anatomical structures and proportions will prepare students for pursuits in character animation and storyboarding. Related social and gender concerns are investigated to contextualize figurative representations within a broader cultural framework. The final component of this course addresses drawing in the context of a digital environment. Students will transfer their knowledge of traditional drawing techniques to computer imaging software and hardware. This shift affords students the opportunity to begin explorations in time-based media and two-dimensional animation.

## **IAT 232**

### **Prototyping and Human Factors**

This course examines the role of prototyping in the design, development and assessment of the physical relationship between people and technology for interactive products. Different prototyping methods can be used to test

different aspects of a project throughout the design development process and students will learn to analyze the elements of interaction and determine which issues can be dealt with most effectively using which prototyping techniques.

The course begins with a survey of the theory and development of prototyping skills and techniques that have evolved over the past 20 years in the field of design. Students will be introduced to a range of prototyping techniques ranging from paper prototyping to basic model building. The course will then examine in more depth the value of different prototyping techniques for assessing human factors and ergonomics as well as the functional and visual characteristics of new design concepts through a progressive series of weekly projects.

Lectures and readings complement the studio assignments by providing an historical, theoretical and critical understanding of the techniques explored.

## **IAT 241**

### **Animation**

The course presents an introduction to techniques for 3D computer animation such as key framing, performance animation, procedural methods, motion capture, and simulation. The course also includes an overview of story-boarding, scene composition, and lighting and sound track generation. The course will explore current research topics in computer animation such as facial animation, behavioral animation, artificial life and interactive systems.

## **IAT 242**

### **Moving Images**

Reviews and consolidates the fundamentals of digital video production, including camera and composition skills, the role of sound, lighting, and



continuity and montage editing. Students will review and analyze works from traditional cinema and from contemporary digital video. The course will reinforce fundamental skills and extend the student's abilities to use a range of digital production, post-production, and presentation techniques.

#### **IAT 244**

##### **Digital Photography I**

An introduction to digital photography and photographic image modification through the use of computer technology. Students will build skills and techniques in digital photography and image processing for digital printing, the web, and interactive multimedia. Emphasis is placed on acquiring digital photographic skills based on proficiency through the appropriate use of software and image editing tools. Image formatting possibilities are investigated, along with aesthetic/functional aspects of site navigation, design, sequence and consistency.

Digital Photography I- Post Photography is a studio based course where learning takes place through reading and responding to discussion questions in class and applying new perspectives to in class critiques of on-going projects and assignments. Additionally, students will be lead through workshops that emphasize skill building and creative solutions to digital imaging. Students will also participate in discussions around the work of significant artists and photographers in order to gain historical and cultural perspectives on their own art making practice. Throughout the class, students will work on their own extended creative project.

#### **IAT 261**

##### **Spatial Computing**

An exploration of the major concepts of analytical and computational geometry and an introduction to tools for programming geometric

information and displaying the results. Students completing this course will have a basic understanding of how computer graphics systems work; skills in writing programs to display geometric information for graphics display; ability to solve geometric problems using transformations, geometric representations and the basic algorithms of computational geometry; and familiarity with various common mathematical notation for representing spatial objects.

### **IAT 312**

#### **Foundations of Game Design**

Examines the discipline of game design. Games are studied across three analytical frameworks: games as rules (formal system), games as play (experiential system), games as culture (social system). Includes analytical and practical exercises in game design.

### **IAT 323**

#### **Interactive Installation and Performance**

Introduces the performing body into the context of interactive arts and technology. Students are asked to reflect upon ideas of liveness, presence, and interactivity as they create projects that take the form of interactive installation or performance. Specific contextual background includes references to the intermedia practices of 20th century artists, combined with an emphasis on improvisation and spontaneity. Performance is understood through the filter of locative media and physical and/or virtual networks. Projects combine computational and interaction models to create interactive experience.

### **IAT 332**

#### **Design Evaluations**

Examines evaluation concepts and methods for interaction designers. Analyzes the range of evaluation approaches including informal evaluation,

usability, field studies, heuristics, critique and discursive evaluation. Students will explore techniques for feedback including observation, interviews, expert reviews, use experience, modeling, and critical analysis. Underlying concepts of evaluation including scientific observation, ethnography, phenomenology, and aesthetics will be discussed. Students will learn how to design and implement appropriate evaluation studies for a range of ubiquitous computing environments.

### **IAT ۳۳۵**

#### **Analysis of Design Situations**

Examines methods for analyzing and gathering requirements for design situations as they relate to the range of ubiquitous computing applications. Examines the conceptual frameworks for understanding human action and context in design situations. Students will review a range of methods for requirements gathering, interviews, observation, ethnographic, ethno-methodological, performance workshops and informance design techniques. Students will also study qualitative, quantitative, and interpretive modes of analysis of data and how to support design with these findings. Students will engage in a range of case-stories and projects focused on user analysis.

### **IAT ۳۴۰**

#### **Experimental Sound Design**

Techniques in real-time audio digital signal processing appropriate for game development and virtual environments are explored including interactive speech, music and sound effects. In conjunction with a study of the theory of the interaction of sound with other media elements students will have the opportunity to pursue interests in the design of sound for moving images and the composition of dynamic, navigable and immersive aural settings embedded in ۳D graphic environments.

## **IAT ३०२**

### **Knowledge Media**

An introduction to knowledge media as the study of how people design, create and use technologies that convey knowledge. The emphasis is on how such media support people in work and learning contexts. A range of technologies is treated in a comparative manner, addressing both utility for intended tasks and design and implementation. Particular topics include comparison of humanistic and technological views of knowledge; group creation of knowledge; visualization and visual inference; user modeling; collaboration and supporting technologies; computer-supported cooperative work; participatory design; and knowledge networks and communities.

## **IAT ३०३**

### **Human-Centered Systems Design Studio II**

Develops the ability to work in a variety of human-centred system development roles, to understand and be able to deploy a range of technology and interface types, and to begin a process of maturation as designers of human-centred systems. The pedagogical structure of these courses is student engagement in a design case and formal instruction in needed material relevant to the design case.

## **IAT ३१२**

### **Design Studio: Ubiquitous, Mobile & Wearable Computing**

Focuses on the design, fabrication and testing of prototype interactive products and systems. The thematic investigation will change each year and will focus on topics central to evolving developments in ubiquitous, mobile and wearable computing. Students will be expected to produce operational prototypes for testing and evaluation. Topics selected by faculty for ३१२ will differentiate this course from ३११.

## **IAT ३२०**

## **Exhibiting Interactive Installation & Performance Studio**

Provides a context for students to learn the stages and scope of professional exhibition. Designed to complement the Graduate Project IAT 400 and/or PMA Studio 422-3. Working in teams, the students will learn skills for exhibiting, promoting, marketing, audience and space management, writing strategies for press, grants & conference presentations, creating a viable project web presence, plus infrastructural details such as shipping, set up and take down.

### **IAT 430**

#### **Design Research**

Explores how the practice of design helps to explain the world around us or how we can find ways to improve the way we design. Introduces the importance of design research in the domains of defining the field of design, design education and design practice. Students will review case-stories of research problems in design, explore research methods relevant to design, and explore research topics and questions. Students will be expected to explore, complete and communicate their own research investigation into a design-related research problem.

### **IAT 443**

#### **Media Studio: Image, Sound, and Motion**

An intermediate level investigation of interactivity explored through media, in the context of current display technologies relevant to Interactive Arts and Design. Examines the computational and compositional structures related to image, sound and video, including 3D animation. Students explore real-time interaction and representation within a range of display scales ranging from cell phone, PDA to larger scale displays such as CAVE environments. Students will design, produce and critically appraise works within responsive interactive environments. Project context could vary from mobile

locative media to immersive VR spaces.

### **IAT 440**

#### **Immersive Environments**

An introduction to authoring virtual immersive environments and worlds. Explores new forms of interactive communication and delivery by using a research practice approach which involves creating a new methodology as the work is explored.

### **IAT 401**

#### **Design of Ubiquitous Environments**

Ubiquitous environments are those in which information and control services are available for casual use. The design of such environments requires in-depth understanding of patterns of use, user-centred design processes and knowledge of enabling technologies. This course covers all three areas, with particular emphasis on how technologies enable human action. The well-known example of a smart house is used to motivate and demonstrate how ubiquity can act as a design principle.

### **IAT 404**

#### **Human Centered Design Graduation Studio**

Focuses on the acquisition of relevant knowledge and skill in designing, implementing and evaluating human-centered systems. Each of the four Design Studio courses has a similar structure: workshops around key issues arising in the particular human-centered system being designed and a semester-long project with multiple milestones as the primary assessment device.

## ۵ نتیجه گیری

استخراج سرفصل دروس که شامل برخی پراکندگی و عدم هماهنگی مطالب بود هماهنگ و قابل استفاده گردید. هدف این فاز که جمع آوری مطالب موجود در حوزه موضوع بود انجام گردیده و بصورت چکیده ارائه گردیده است. این منبع اطلاعاتی که مطالعه منابع نیز نام دارد در فاز های آتی این طرح پژوهشی به عنوان منبع استفاده خواهد شد. بایستی ذکر شود که این فاز پایان مطالعات به حساب نیامده و در تمام مراحل این طرح ادامه خواهد داشت.