2009

Art and Design/Industrial Design (ARID)

Montclair State University

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<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Special Fee</th>
<th>Number and type of credits</th>
<th>Course Description</th>
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<tr>
<td>ARID100</td>
<td>Design Sketching.</td>
<td>Departmental approval.</td>
<td>Special fee</td>
<td>2 hours lecture, 2 hours studio.</td>
<td>Students gain an understanding of the relevance and role of effective sketching and drawing techniques, as essential communication tools for industrial designers. The course work addresses 2D geometry and fundamental 3D, descriptive geometry. The course focuses on developing students' free hand sketching, marker rendering and technical drafting abilities, necessary to accurately communicate design ideas in conceptual, aesthetic and technical terms.</td>
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<tr>
<td>ARID101</td>
<td>Digital Sketching.</td>
<td>ARID 100 and ARID 111.</td>
<td>Special fee</td>
<td>2 hours lecture, 2 hours studio.</td>
<td>Building on skills gained in ARID 100 the course concentrates on digitally developed and enhanced presentation techniques using industry standard computer applications. The course material extends students' technical knowledge and skill level in creating effective presentations employing digitally enhanced sketches and computer generated drawings in design concept and idea development. Logic of effective presentation techniques appropriate for industrial designers is part of the coursework.</td>
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<tr>
<td>ARID111</td>
<td>Model Making and Prototype.</td>
<td>Special fee.</td>
<td>Special fee</td>
<td>2 hours lecture, 2 hours lab.</td>
<td>Students will learn the role of model making and prototyping in the design process. The focus of the course is the construction of scale models as a means of visualizing design ideas. Students will learn the importance of making various study and presentation models and use appropriate techniques and materials relevant in each stage of the design process. Course assignments challenge students to study and develop an understanding of aesthetic forms and require them to focus on detail and workmanship.</td>
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<tr>
<td>ARID120</td>
<td>Human Factors in Design.</td>
<td>ARID 100 and ARID 111.</td>
<td>Special fee</td>
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<td>Course Code</td>
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<td>Corequisites</td>
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|-------------|------------------------------|-------------------------------------------------------------------------------|-------------------|-------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
| ARID201     | Design and Problem Solving   | ARID 100, ARID 101, ARID 111, ARID 120. For Industrial Design (INDS) majors only. |                   | Special fee | 2 hours lecture, 2 hours lab. | Problem solving models and their application provide the focus of all coursework. The course builds on the knowledge gained in previous subjects and addresses, problem sets ranging from, technical constrains, aesthetic requirements, material limitations, or system related problems. In this course, fast paced, research intensive assignments challenge students to think intuitively, exercise critical approaches to problem identification, problem solving and visualization. Successfully completed projects in this course begin the development of a student's industrial design portfolio.                           |
| ARID202     | Industrial Design Beginning  | ARID 100, ARID 101, ARID 111, ARID 120 and ARID 201. For Industrial Design (INDS) majors only. | ARID 211 and ARID 221. | Special fee | 2 hours lecture, 2 hours studio. | The course content introduces students to different philosophies of design and to the design development process. Students will analyze products to learn to differentiate between various design approaches. Students will work on
multiple, beginning level, design assignments that cover research, critical
thinking and developing coherent arguments in all stages of the design
development process. Students are expected to demonstrate thorough knowledge
in all previous subject areas to successfully complete this course.

ARID210  Title  Manufacturing Technology.
Prerequisites  ARID 100, ARID 101, ARID 111, ARID 120. For Industrial Design (INDS) majors only.
Corequisites  ARID 201, ARID 220.
Special Fee  Special fee.
Number and type of credits  2 hours lecture, 2 hours studio.
Course Description  The primary objective of this course is to equip students with the theories of
traditional manufacturing production technology. Various methods for
producing mass manufactured consumer products are analyzed, together with
examining material properties best suited for a particular design. Students
will learn about the most common material families used in product design and
the manufacturing processes applied to satisfy production feasibility and
design outcome. Laboratory activities and assignments are in conjunction with
ARID 220 Digital Modeling 1.

ARID211  Title  Design for Manufacturing.
Prerequisites  ARID 100, ARID 101, ARID 111, ARID 120, ARID 201, ARID 210, ARID 220. For
Industrial Design (INDS) majors only.
Corequisites  ARID 202 and ARID 221.
Special Fee  Special fee.
Number and type of credits  2 hours lecture, 2 hours studio.
Course Description  This course is a continuation of ARID 210, and emphasizes the application of
technical knowledge pertinent to product design. In addition to demonstrating
thorough knowledge of traditional manufacturing technology, students will
engage in researching emerging technologies and new materials. The course
covers how design aesthetics, functionality, sustainability and other
objectives influence production. Laboratory activities and assignments are in
conjunction with ARID 221 Digital Modeling 2 and experimentation with 3D
digital prototyping.

ARID220  Title  Digital Modeling I.
Prerequisites  ARID 100, ARID 101, ARID 111, ARID 120. For Industrial Design (INDS) majors
ARID 220 Course Description

This course is about the fundamentals of digital parametric modeling. Content is organized around part modeling, assembly models and technical drawing generation. Students are taught to build conceptual and performance models required in the practice of visualizing and testing three dimensional objects on computer. The course emphasizes the purpose and importance of digital modeling in the design process. This subject requires students to apply their knowledge of geometry, problem solving and 3D visualization ability. Students are expected to explore the possibilities of digital modeling with curiosity and inventiveness, maximizing their confidence and skill level.

ARID 221 Title
Digital Modeling II.

Prerequisites
ARID 100, ARID 101, ARID 111, ARID 120, ARID 201, ARID 210, ARID 220. For Industrial Design (INDS) majors only.

Corequisites
ARID 202 and ARID 211.

Special Fee
Special fee.

Number and type of credits
2 hours lecture, 2 hours studio.

Course Description
The second part of the Digital Modeling course sequence focuses on expanding students' knowledge gained in ARID 220 and builds on the material of previous course subjects. Content provides an in depth knowledge of Computer Aided Design as it applies to product development on the corporate level. Simulation and visualization of problems, related to form and technological issues are discussed. Students are expected to independently explore the wide range of possibilities and approaches to digital modeling.

ARID 302 Title
Industrial Design Intermediate.

Prerequisites
ARID 201, ARID 202, ARID 210, ARID 211, ARID 220. For Industrial Design (INDS) majors only.

Special Fee
Special fee.

Number and type of credits
2 hours lecture, 2 hours studio.

Course Description
The course content concentrates on aesthetic and technical aspects of design,
appropriate for the junior level. The focus is on learning design practices, addressing cultural and social concerns, material selection and manufacturing for developing feasible design solutions. The development of coherent design documentation along with presentation quality prototypes are stressed in the course content. Research, application of critical thinking, exploration of opportunities related to factors, product marketing and technology are required.

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<tr>
<th>ARID303</th>
<th>Title</th>
<th>Industrial Design Advanced.</th>
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<tr>
<td>Prerequisites</td>
<td>ARID 201, ARID 202, ARID 210, ARID 211, ARID 220, ARID 221, ARID 302. For Industrial Design (INDS) majors only.</td>
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<tr>
<td>Special Fee</td>
<td>Special fee.</td>
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<td>Number and type of credits</td>
<td>2 hours lecture, 2 hours lab.</td>
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<td>Course Description</td>
<td>Students propose a research topic for a significant design project to develop a product that satisfies the criteria of aesthetic sophistication and allows a conscious approach to technical development. Through total immersion into their subject throughout the semester, students will address the cultural, social, technical and production issues around their design, establish branding opportunities and demonstrate product feasibility on multiple levels. Completion of design documentation and a portfolio of the project are required at the end of the semester.</td>
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<th>ARID360</th>
<th>Title</th>
<th>Professional Practices in Industrial Design.</th>
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<tr>
<td>Prerequisites</td>
<td>ARID 120, ARID 201, ARID 202, ARID 220, ARID 221. For Industrial Design (INDS) majors only.</td>
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<tr>
<td>Special Fee</td>
<td>Special fee.</td>
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<tr>
<td>Number and type of credits</td>
<td>3 hours lecture.</td>
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<td>Course Description</td>
<td>This course explores contractual, legal, financial and ethical issues industrial designers face in their professional careers. Students will also focus on developing their resume and a junior level portfolio, consisting of successfully completed previous courses. The portfolio must contain evidence of research, preliminary concepts, technical development, and a final design argument. The course also introduces students to professional organizations and career development. Successful completion of this course will enable</td>
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### ARID380 Title
Metal Casting Technology.

**Prerequisites**
ARID 210.

**Special Fee**
Special fee.

**Number and type of credits**
2 hours lecture, 2 hours lab.

**Course Description**
The study of contemporary industrial metal casting techniques. Laboratory activities will afford the student an opportunity to develop an understanding of casting practices as applied to the design of industrial products.

### ARID410 Title
Senior Design Thesis I.

**Prerequisites**
ARID 302, ARID 303, ARID 360. For Industrial Design (INDS) majors only.

**Special Fee**
Special fee.

**Number and type of credits**
2 hours lecture, 2 hours studio.

**Course Description**
Students begin to research and explore design opportunities to develop multiple project concepts based on their own interests for the purpose of proposing a complex industrial design thesis project. Students are required to provide evidence of all the knowledge they have obtained in the major, and to present data resulting from independent studies, exploration and research. The project complexity is expected to be on the level of a senior thesis and its viability is evaluated by a faculty appointed panel. Students work in conjunction with faculty, external consultants, or an actual client.

### ARID411 Title
Senior Design Thesis II.

**Prerequisites**
ARID 302, ARID 303, ARID 410. For Industrial Design (INDS) majors only.

**Special Fee**
Special fee.

**Number and type of credits**
2 hours lecture, 2 hours studio.

**Course Description**
This course is the second part of a two-part course sequence (with ARID 410). Students focus on the completion of their thesis projects. They work independently; receive regular feedback from faculty and their external consultant. The objective is to build students' confidence in developing and finalizing design details and perfecting their projects to achieve a rational design solution. Preparing design documentation, study and presentation models and illustrative presentation panels is compulsory.

### ARIL220 Title
Illustration, Beginning I.

**Prerequisites**
ARFD 122.