2009

Art and Design/Industrial Design (ARID)

Montclair State University

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### ARID100
**Title**: Design Sketching.  
**Prerequisites**: Departmental approval.  
**Special Fee**: Special fee.  
**Number and type of credits**: 2 hours lecture, 2 hours studio.  
**Course Description**: 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.

### ARID101
**Title**: Digital Sketching.  
**Prerequisites**: ARID 100 and ARID 111.  
**Special Fee**: Special fee.  
**Number and type of credits**: 2 hours lecture, 2 hours studio.  
**Course Description**: 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.

### ARID111
**Title**: Model Making and Prototype.  
**Special Fee**: Special fee.  
**Number and type of credits**: 2 hours lecture, 2 hours lab.  
**Course Description**: 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.

### ARID120
**Title**: Human Factors in Design.  
**Prerequisites**: ARID 100 and ARID 111.
<table>
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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Special Fee</th>
<th>Number and Type of Credits</th>
<th>Course Description</th>
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</thead>
<tbody>
<tr>
<td>ARID201</td>
<td>Design and Problem Solving.</td>
<td>ARID 100, ARID 101, ARID 111, ARID 120. For Industrial Design (INDS) majors only.</td>
<td></td>
<td>Special fee</td>
<td>2 hours lecture, 2 hours lab</td>
<td>Students will study how human factors guide design. The concept of form and function in relation to aesthetics and ergonomic principles, associated with human-product interaction is studied. The importance of cultural and social behavior factors that influence product perception and design development are emphasized. Students will gain understanding of the &quot;user centered design&quot; theory and be able to differentiate designs of functional and emotional nature. Aligning research with use of relevant data is fundamental to the successful completion of this course.</td>
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</tbody>
</table>
| 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.

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Special Fee</th>
<th>Number and type of credits</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>ARID210</td>
<td>Manufacturing Technology.</td>
<td>ARID 100, ARID 101, ARID 111, ARID 120. For Industrial Design (INDS) majors only.</td>
<td>ARID 201, ARID 220.</td>
<td>Special fee.</td>
<td>2 hours lecture, 2 hours studio.</td>
<td>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.</td>
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<tr>
<td>ARID211</td>
<td>Design for Manufacturing.</td>
<td>ARID 100, ARID 101, ARID 111, ARID 120, ARID 201, ARID 210, ARID 220. For Industrial Design (INDS) majors only.</td>
<td>ARID 202 and ARID 221.</td>
<td>Special fee.</td>
<td>2 hours lecture, 2 hours studio.</td>
<td>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.</td>
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<tr>
<td>ARID220</td>
<td>Digital Modeling I.</td>
<td>ARID 100, ARID 101, ARID 111, ARID 120. For Industrial Design (INDS) majors</td>
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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></td>
<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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<td></td>
<td>Special Fee</td>
<td>Special fee.</td>
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<tr>
<td></td>
<td>Number and type of credits</td>
<td>2 hours lecture, 2 hours lab.</td>
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<td></td>
<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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<tr>
<th>ARID360</th>
<th>Title</th>
<th>Professional Practices in Industrial Design.</th>
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<tr>
<td></td>
<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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<td></td>
<td>Special Fee</td>
<td>Special fee.</td>
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<td></td>
<td>Number and type of credits</td>
<td>3 hours lecture.</td>
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<td></td>
<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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<tr>
<td>Course Code</td>
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<td>ARID380</td>
<td>Metal Casting Technology.</td>
<td>ARID 210.</td>
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<td>ARID410</td>
<td>Senior Design Thesis I.</td>
<td>ARID 302, ARID 303, ARID 360.</td>
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<tr>
<td>ARID411</td>
<td>Senior Design Thesis II.</td>
<td>ARID 302, ARID 303, ARID 410.</td>
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<tr>
<td>ARIL220</td>
<td>Illustration, Beginning I.</td>
<td>ARFD 122.</td>
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