

2009

## Art and Design/Industrial Design (ARID)

Montclair State University

## Art & Design/Industrial Design

ARID100	Title Prerequisites Special Fee Number and type of credits Course Description	Design Sketching. Departmental approval. Special fee. 2 hours lecture, 2 hours studio. 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 Prerequisites Special Fee Number and type of credits Course Description	Digital Sketching. ARID 100 and ARID 111. Special fee. 2 hours lecture, 2 hours studio. 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 Special Fee Number and type of credits Course Description	Model Making and Prototype. Special fee. 2 hours lecture, 2 hours lab. 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 Prerequisites	Human Factors in Design. ARID 100 and ARID 111.

	Special Fee	Special fee.
	Number and type of credits	2 hours lecture, 2 hours lab.
	Course Description	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 "user centered design" 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.
ARID201	Title	Design and Problem Solving.
	Prerequisites	ARID 100, ARID 101, ARID 111, ARID 120. For Industrial Design (INDS) majors only.
	Special Fee	Special fee.
	Number and type of credits	2 hours lecture, 2 hours lab.
	Course Description	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
ARID201	Course Description	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	Title	Industrial Design Beginning.
	Prerequisites	ARID 100, ARID 101, ARID 111, ARID 120 and ARID 201. For Industrial Design (INDS) majors only.
	Corequisites	ARID 211 and ARID 221.
	Special Fee	Special fee.
	Number and type of credits	2 hours lecture, 2 hours studio.
	Course Description	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

	Corequisites	only.
	Special Fee	ARID 201, ARID 210.
	Number and type of credits	Special fee.
	Course Description	2 hours lecture, 2 hours lab.
		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
ARID220	Course Description	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.
ARID221	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.
ARID302	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.

ARID303	Title	Industrial Design Advanced.
	Prerequisites	ARID 201, ARID 202, ARID 210, ARID 211, ARID 220, ARID 221, ARID 302. For Industrial Design (INDS) majors only.
	Special Fee	Special fee.
	Number and type of credits	2 hours lecture, 2 hours lab.
	Course Description	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.
ARID360	Title	Professional Practices in Industrial Design.
	Prerequisites	ARID 120, ARID 201, ARID 202, ARID 220, ARID 221. For Industrial Design (INDS) majors only.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	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
ARID360	Course Description	and career development. Successful completion of this course will enable

		students to apply professional skills and conduct associated with the field of Industrial Design.
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.