**Spring 2017**

**College of Architecture & Design**

**Electives**

**Nov 10, 2016**

**Undergraduate Electives**

\*\*In addition to the electives below, there are courses that are regularly offered under AD, ARCH, DD, ID, and INT course numbers which students may opt to take to fulfill design and/or arch elective requirements. The schedules for those courses can be found on the Registrar’s Course Schedule website under the course prefixes noted above.

**Course # Section # Title Instructor Enrollment**

AD 490 002 Motion Capture A. Wendell 4

Thurs 6:00 -9:00pm

AD 490 004 or 006 Gifts K. Mead 14

Fri 8:30 or 1:00

AD 490 102 Educational Game Design J. Ross 15

Tues 6:30 – 9:30pm

DD 320 102 Robotics for Architects and Designer T. Narahara 2

Mon 6:00 -9:00pm

INT 351 002 Furniture Design D. Brothers 14

Tues 1:00 – 4:00pm

Arch 301 002 Digital Modeling & Fabrication C. Belmont 12

Fri 8:30 – 11:30am

Arch 317 002 Advanced Architecture Graphics C. Harp 15

Wed 11:30 – 2:30pm

Arch 332 002 Architecture: Image & Word I S. Zdepski 15 Wed 8:30 – 11:30am

Arch 419 002 Architecture Photography N Prantis 15

Fri 1:00 – 5:00pm

Arch 531E 002 History of Non Western Architecture Z. Celik 11

Wed 11:30 – 2:30pm

Arch 531H 002 Aspects of Urban Form Z. Celik 2

Tues 1:00 – 4:00pm

Arch 543 102 Lighting 13

Tues 10:00 – 1:00pm

Arch 547 002 Topics in Computer Applications R. Taher 4

Fri 1:00 – 4:00pm

Arch 574 002 Case Studies in Community and Urban Design S. Moore 1

Fri 1:00 – 4:00pm

Arch 583 002 Scripting for Design C. Portelli 7

Mon 8:30 – 11:30am

**Graduate Electives**

Undergraduate students with cumulative g.p.a. of 2.8 or higher are encouraged to take 600-level graduate level

electives. For special permission to do so, print and fill out the form at the back of this document, obtain the approval of your undergraduate advisor and the graduate architecture advisor, and submit the completed form to the Office of the Registrar.

Masters students are also encouraged to take 700-level doctoral electives. For special permission to do so, contact the course instructor. Once her approval is conveyed to the graduate advisor, you will be given permission to enter the course.

Arch 647 002 Building Information Modeling V. Benant 11

Tues 11:30 – 2:30pm

Arch 679 002 Envisioning Newark T. Schuman 5

Tues 11:30 – 2:30pm

MIP 631 102 History & Theory of Infrastructure J. LeCavalier 10

Wed 6:00 – 9:00pm

MIP 655 002 Land Use Planning T. Navin 11

Wed 11:30 – 2:30pm

MIP 674 102 Infrastructure & Architecture D. Sollohub 2

Tues 6:00 – 9:00pm

USYS 711 102 The Good City K. Franck 2

Tues 6:00 – 9:00pm

**AD 490 – 002 Motion Capture (Wendell)**

The College of Architecture and Design has a new, state of the art, 12 camera Vicon Motion Capture Lab. This course will utilize this lab facility in service to a variety of design projects. Students will develop a familiarity with the technology of the laboratory, the capture and processing of data, and the output of motion capture data to a variety of output formats. These formats may include, but not be limited to: Character Animation, 3d Gaming Simulations, Ergonomic Analysis, Simulated Narratives, etc. Class will meet both in the lab and in a computing lab. Students will undertake a large personally driven create motion capture project in the second half of the semester.

**AD 490 -004 or 006 Gift\_(Mead)**

Creating product for the gifting industry is harder than one might think. Products that have mass appeal have to be unique but also price conscious. Not to mention, there is also a TON of competition out there! Coming up with a plan to market your product so that it has the best chance to make it big can be extremely difficult. In this class students will study Stores(online/brick & mortar), Trade Shows, Product Categories, Trends, Marketing, PR, Price Points, Buyers vs Customers, Purchasing, Invoicing, Basic Bookkeeping, Designers working in the field, as well as the History of popular gifts and why they sell well. The class will result in students designing a product that they believe will be a hit seller. This class has a strong focus on entrepreneurship. Taught by Kiel Mead, NJIT lecturer and founder/owner of the American Design Club. A representation company with over 50 designer brands on roster, selling to over 2000 stores across the USA.

**AD 490 – 102 Educational Game Design (Ross)**

This course will be a collaboration with the IT Program’s Educational Game Development course. We will focus on the design and art side of an educational game production for a middle school educational product. The finished game will be demoed to local schools. Areas of production will include product, game, and instructional design, along with art and animation creation. Skillsets will include story, character, environment level design, storyboarding, concept artwork, 3D modeling and 2D art animation, as well as game asset integration.

**DD 320 -102 Computational Design: Robotics for Architects & Designers (Narahara)**

This course is for upper level students exploring interactive and kinetic prototypes using microcontrollers (Arduino), sensors, and actuators. The course will take a hands-on approach to learn about sensors (such as Kinect), actuators (such as servo motors), graphic/game design software (Processing and Unity3D), and prototyping using laser cutting and 3-D printing. The course will focus on producing creative and aesthetically articulated applications of robotic technologies. Topics include adaptable, responsive, and distributed systems. Recommended for 5th, 4thand 3rd year students with basic knowledge on programming and digital fabrication skills. Open to students from any collage. (<https://dl.dropboxusercontent.com/u/9376557/DD320%20Movie.mp4>)

**INT 351. Furniture Design (Brothers)**

Prerequisites: [INT 264](http://catalog.njit.edu/search/?P=INT%20264) or [ID 264](http://catalog.njit.edu/search/?P=ID%20264) or [DD 364](http://catalog.njit.edu/search/?P=DD%20364) or FA 264 or [ARCH 264](http://catalog.njit.edu/search/?P=ARCH%20264). Corequisite: Studio enrollment. This course is an introduction to the concepts, materials and construction technologies involved in the design and fabrication of furniture. It explores the relationship between ergonomics, comfort and function in the design of furniture for both site-specific environments and mass-produced applications. Course includes lectures, field trips and a variety of drawn, modeled, and built design projects.

**Arch301-002 Digital Modeling and Fabrication (Belmont)**

The seminar in Digital Modeling and Fabrication is a 3-credit course for upper level students exploring advanced 3-dimensional computer modeling techniques and data export for assembly and fabrication to various computer numerically controlled (CNC) hardware available at the School of Architecture. Specifically, students engage in NURBS and solid modeling using Rhinoceros 3D and export data through various Rhino plug-ins including RhinoCAM, which writes G- and M- Codes for 2 and 3D milling operations. CNC hardware available as of Spring 2010 includes two (2) Universal Laser Cutters, each with 18" x 32" beds; two (2) Z-Corporation Z-310 3 dimensional printers; and a Precix 9100 Industrial CNC Router with a 48" x 96" bed. Students model and fabricate full scale assemblies individually and in teams and contribute to a final exhibition of student work. Familiarity with various software tools available at the College of Architecture and Design is encouraged but not required. Admission to the course to students in their second year of study by discretion of instructor.

**ARCH 317-002 Advanced Architecture Graphics, (Harp)**

Prerequisite: [ARCH 264](http://catalog.njit.edu/search/?P=ARCH%20264). Gives students advanced techniques for architectural expression in traditional media. Emphasis on how drawing may be used to reveal the inner qualities of design. A basic knowledge of drawing methods, media, materials, and projection techniques is assumed.

**Arch 332-002 Architecture: Image & Word I (Zdepski)**

This course will present films on Architecture in which architects are speaking about and showing their own work. What we think is true about architecture is often wrong. Single images tend to abstract and greatly simplify why and how great architecture is created. Rarely are buildings seen in their content. Rarely are climatic, cultural and technical issues of design illustrated. AS a result, we often speculate about architecture based upon superficial or incomplete information.

**ARCH 419-002 Architectural Photography (Prantis)**

Prerequisite: [ARCH 364](http://catalog.njit.edu/search/?P=ARCH%20364). This course is designed for architecture students in using photography to better visualize form in space in a 2-D format, lighting, color, and composition. The course goal is developing their unique expressive abilities in seeing through the camera. Discussions emphasize correlating historical movements in architecture and the visual arts in photography, using relevant text selections, slide presentations, and museum visits for reinforcement.

**ARCH 531E -002 History of Non-Western Architecture (Celik)**

Prerequisites: [ARCH 382](http://catalog.njit.edu/search/?P=ARCH%20382). An examination of major architectural traditions of China, Japan, Southeastern Asia, India, and the Middle East. Each area is considered with reference to a conceptual, iconographic and stylistic paradigm that evolved from a particular historical context.

**ARCH 543 – 002 Lighting ( )**

Prerequisites: ARCH 327 or INT 222. Explores, through modeling and calculation, the means by which architectural form and detail influence the luminous environment. Perceptual responses such as visual comfort and delight are examined. Topics include daylighting footprints, model design and testing, and computer-assisted light level analysis. Areas of investigation include the relationship between daylight and electric light in architecture; the variations of light with time; analysis of seasonal and weather differences; role of task in lighting strategies; and means of control for light quantity and quality.

**Arch 547-002 Topics in Computer Applications (Taher)**

**ARCH 574-002 Case Studies in Community and Urban Design (Moore)**

In-depth investigation of specific real-world problems of urban or community design carried out using case method approach. Current practices in the U.S. and other countries studied using interviews with designers, developers, community groups and government agencies. Site visits, reports and other documents provide important sources of information. Final report with supporting documentation required.

**ARCH 583 Scripting for Design (Belmont)**

This course will expose students to a scripting environment that has become prevalent in the modern day field of architecture. The goal of the class is for students to learn how to leverage scripting in a design environment in order to expand their modeling and design skill set. Each student will be exposed to the Python scripting language. Here the students will learn basic aspects of scripting and apply them to the 3D modeling environment.

**Arch 647 Building Information Modeling (Benanti)**

This Grad course explores both technical and philosophical approaches to the use of the computer in architectural analysis, design development, information management, and document delivery. Autodesk Building Systems and Autodesk Revit Building will be used for 3D modeling and 2D documentation employing a systems-approach framework for spatial allocation, energy analysis, and structural considerations. The workings of the foundational information databases of the respective software will be thoroughly explored. Projects requirements will include building program resolution, solar analysis, asset scheduling, document layout, and design visualization. Proficiency with Autodesk Autocad (2D) and understanding of general CAD principles are required prerequisites.

**Arch 679 – 002 Envisioning Newark (Schuman)**

This seminar combines classroom discussion based on historical, analytical and literary texts; field visits to Newark's districts and neighborhoods; and meetings with leaders in government, business, art, education, and community-based organizations. The objective is to introduce students to the redevelopment process underway in Newark, and to use the city as a springboard for a broader investigation of the theory and practice of urban development.

**MIP 631. History and Theory of Infrastructure (LeCavalier)**

The historical role of infrastructure in the formation of cities and the relation of planning theories to urban culture. Case studies are used to develop effective ways of learning urban design; method and substance are equally emphasized. Concentration on the social, economic, political, technological and topographic factors that affect urban form; analysis of urban design schemata and their relation to patterns of use; and the critical appraisal of planning ideologies and strategies.

**MIP 655. Land Use Planning (Navin)**

Spatial relations of human behavior patterns to land use: methods of employment and population studies are evaluated; location and spatial requirements are related to land use plans; and concepts of urban renewal and recreational planning are investigated by case studies. Same as [TRAN 655](http://catalog.njit.edu/search/?P=TRAN%20655) and CE 655.

**MIP 674. Infrastructure and Architecture (Sollohub)**

Examination of areas of overlap and continuity between architecture, landscape architecture, urban design, building science and infrastructure. Topics include the typology, programming and design of public facilities; the housing fabric; the relation between built form, urban space and infrastructure. Same as ARCH 674.

**USYS 711. The Good City: Environment Design and Quality (Franck)**

Prerequisites: Enrolment in Urban Systems Program or by permission of instructor. This course introduces urban systems doctoral students to the various ways in which architects, urban designers, and planners have sought and continue to seek to improve the quality of everyday life in urban and suburban environments through the design of the built environment, both at the scale of neighborhoods and communities and at the scale of buildings. The emphasis is on manipulation of built form, transportation, and public space as responses to perceived problems. Key topic area are housing and neighborhoods, public space, transportation, schools, and hospitals.