

Architectural Design 4
Course number – 768
Teacher – Mr. Benjamin Kappler
Supervisor - Mr. Mark Wallace
Principal – Mr. Gregory Youngman
Director of Curriculum & Instruction: Ms. Janice Mezier
Superintendent - Dr. John Hannum
2008

Name of Course: Architecture 4

Level of course: 1.20

Prerequisites: Architecture 1, Architecture 2, Architecture 3

Course number: 768

Number of credits: 5

Revised date and Teachers names: June 2, 2008 – Mr. Benjamin Kappler

Purpose: The fourth year course is designed to prepare students for a future in the field of Architecture. This course will enhance the habits of neatness, accuracy, and self-discipline. Also, each student will be required to use his/her creative abilities to complete an individual yearlong project.

General Objectives:

1. Students will learn about healthy competition
2. Students will further their lessons of working with others.
3. Students will learn that there are rules that have to be followed in all projects
4. Students will learn the projects from start to finish of what an architect does when presenting a huge project to a customer

Measurement of success in meeting the general goals will be carried out through the following methods of assessment:

Objectives 1, 2, 3, 4

Objectives 1, 2, 3, 4

TSA Competition

Group Project

Method of Instruction: For instructional purpose, the course is divided into two major segments to conform to each of the semester. At the beginning of each segment, the instructor spends three to five days introducing the new concepts and skills. This is done through lectures, illustrations, handouts and classroom discussions. Following this introduction of the new materials, the students spend the remainder of the segment completing the required assigned drawings. The drawings are complete on an individual basis, with instructor presenting mini-lessons and providing assistance when and where needed.

A mid-term and final exam is used to assess the student's acquisitions of facts and concepts.

It should be noted that, while there is no homework assigned during the course, however there will be classwork that students should be able to finish in class. If students do not finish assignments in class, they are expected to come on their own time to complete the assignments within the specified time period. The time schedule is very strict and necessary. All the work must be completed on schedule or the student will receive a failing grade and then make up the required work. Excessive absences or not making effective use of class time will result in the student having to make up time after school. The room and equipment is available before school, after school, and for most periods during the days.

Standards Targeted Throughout this Curriculum

New Jersey Core Curriculum Content Standards (Technology) = 8.1; A1 ,A5, A6 ,A9; B1, B2, B3, B4, B5, B6, B7, B9, B10, B11, B12; and 8.2 A1, A2; B1, B2, B3 ,B4 ,B5, B6; C1, C2, C3.

New Jersey Core Curriculum Content Standards (NJCCCS) = 1.1, 1.2, 1.3, 1.4, 1.5, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.5, 5.1, 5.2, 5.4, and 9.1

New Jersey Technology Education Standards (NJTES) = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.7, 4.8, 4.9, 4.10, 4.11, 4.14, 4.15, 4.16, 6.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, 6.16, 6.17, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.25, 7.30, 7.33, 7.35, 7.36, 7.42, 7.44, 7.45, 7.49, 7.51, 7.53, 7.54, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72, 7.74, 7.75, 7.76, 7.77, 7.81, 7.82, 7.84, 7.85, 7.86, 7.87, 7.88, 7.90, 7.94, 7.106, 7.108, 7.121, 7.123, 7.124, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18 and 8.20

National Technology Education Standards (NTES) = 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19 and 20

High Point Regional High School's curriculum and instruction are aligned to the State's Core Curriculum Content Standards and address the elimination of discrimination by narrowing the achievement gap, by providing equity in educational programs and by providing opportunities for students to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomical status.

Unit 1 – Review of CAD

Time = 10 Days

Goal: Students will refresh their knowledge of CAD.

Objectives: Students will:

1. Use Architectural AutoCAD to produce drafting elements.

Audio-Visual needs: Computer

Computer needs/use: Architectural AutoCAD

Assignments: Teacher generated

Lab activities: None

Assessment method: Traditional/ Authentic

Standards: Technology = 8.1, 8.2

NJCCCS = 1.1, 1.3, 1.4, 1.5, 3.5, 4.1, 4.5, 5.2, 5.4, 9.1

NJTES = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.10, 4.11, 4.14, 4.16, 6.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.14, 6.16, 6.17, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.25, 7.30, 7.33, 7.35, 7.36, 7.42, 7.44, 7.45, 7.49, 7.51, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72, 7.74, 7.75, 7.76, 7.77, 7.81, 7.84, 7.85, 7.86, 7.87, 7.88, 7.90, 7.94, 7.106, 7.108, 7.121, 7.123, 7.124, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20

Unit 2 – Types of Drawings

Time = 15 + ongoing

Goal: Students will gain an understanding of all types of architectural drawings and what the differences between them are. They will also start work on their computer generated 3D model and Perspective/presentation drawing that will be finished as their final project.

Objectives: Students will be able to:

1. Identify different drawing types
 - Floor Plans-computer
 - Elevations-computer
 - 3D computer generated model
 - Presentation Drawing
 - Perspective Drawing
2. Produce examples of each type of drawings

Audio-Visual needs: Computer

Computer needs/use: Architectural AutoCAD

Assignments: Teacher generated

Lab activities: None

Assessment method: Authentic/traditional

Standards: Technology = 8.1 , 8.2

NJCCCS = 1.2, 1.3, 1.4, 1.5, 3.5, 4.1, 4.2, 4.3, 4.5, 5.2, 5.4, 9.1

NJTES = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.7, 4.8, 4.9, 4.10, 4.11, 4.14, 4.16, 6.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.14, 6.16, 6.17, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.25, 7.30, 7.33, 7.35, 7.36, 7.42, 7.44, 7.45, 7.49, 7.51, 7.53, 7.54, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72, 7.74, 7.75, 7.76, 7.77, 7.81, 7.82, 7.84, 7.85, 7.86, 7.87, 7.88, 7.90, 7.94, 7.106, 7.108, 7.121, 7.123, 7.124, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20

Unit 3 – Construction Framing and Support

Time = 20 Days

Goal: Students are to be able to identify, describe, and differentiate the difference between multiple types of framing and structural supports found in a residential dwelling. The student will also draft a sectional drawing of a structure.

Objectives: Students will learn about:

1. Balloon framing
2. Post and Beam framing
3. Platform framing
 - a. In-depth look at interior and exterior framing
4. Roof framing
5. Foundations
6. Sectional View

Audio-Visual needs: Computer

Computer needs/use: Architectural AutoCAD

Assignments: Drawing Assignments

Lab activities: None

Assessment method: Authentic/traditional

Standards: Technology = 8.1 , 8.2

NJCCCS = 1.1, 1.2, 1.4, 1.5, 3.5, 4.1, 4.2, 4.5, , 5.2,

NJTES = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.7, 4.8, 4.9, 4.10, 4.11, 4.14, 4.16, 6.1, 6.6, 6.7, 6.8, 6.13, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.25, 7.30, 7.33, 7.36, 7.42, 7.44, 7.51, 7.53, 7.54, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72, 7.81, 7.82, 7.84, 7.85, 7.86, 7.87, 7.88, 7.90, 7.94, 7.106, 7.108, 7.121, 7.123, 7.124, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20

Unit 4 – Group Stage

Time = 10 Days

Goal: Students will gain the knowledge of putting aside their individuality and their individual beliefs to work in a group atmosphere to accomplish a general goal.

Objectives: Students will be able to:

1. Break themselves up into groups of two or three
2. Will vote for the best two designs of the previously drawn houses
3. Vote for a team captain that will also double as secretary
4. Revise and create an accurate timeline
 - a. Date of the competition
 - b. Tentative date of completion of the first floor
 - c. Tentative date of completion of the second floor (if applicable)

Audio-Visual needs: Computer

Computer needs/use: Microsoft Word, Microsoft Excel, Internet, Architectural AutoCAD

Assignments: Individual assignments that the group may feel necessary

Lab activities: None

Assessment method: Classwork and Field research

Authentic: Design portfolio and journal

Standards: Technology = 8.1 , 8.2

NJCCCS = 1.1, 1.3, 1.4, 1.5, 3.5, 4.1, 4.5, , 5.2, 5.4, 9.1

NJTES = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.10, 4.11, 4.14, 4.16, 6.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.14, 6.16, 6.17, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.25, 7.30, 7.33, 7.35, 7.36, 7.42, 7.44, 7.45, 7.49, 7.51, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72, 7.74, 7.75, 7.76, 7.77, 7.81, 7.84, 7.85, 7.86, 7.87, 7.88, 7.90, 7.94, 7.106, 7.108, 7.121, 7.123, 7.124, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20

Unit 5 – Building Stage

Time = 106 Days

Goal: Students will gain the knowledge of building an elaborate model that can be presented at the TSA competition and will also understand the time and effort that goes into building that model.

Objectives: Students will be able to:

1. Build a model house using the voted house plans
 - a. The model house will be built with but not limited to the following materials:
 - i. Balsa Wood
 - ii. Duco Cement Glue
 - iii. Crescent Board
 - iv. Paint
 - v. Doll House Wallpaper
 - vi. Doll House Flooring
 - b. The teacher must approve any other materials before usage
2. Keep a journal containing the following information:
 - a. Amount of materials used
 - b. Cost of all materials used
 - c. Cost of building the house in real life

- d. Personal dairy of the project
 - i. Can be done once a week
 - ii. All things that are done
 - iii. Any incidents that might have happened during the building stage
- e. Put together a portfolio containing all the information needed for the contest
 - * - (Project ends the week before TSA State Competition)

Audio-Visual needs: Computer

Computer needs/use: Microsoft Word, Microsoft Excel, and Internet

Assignments: Building a Model

Lab activities: None

Assessment method: Classwork

Authentic: Design Portfolio and journal and Teacher observation

Standards: Technology = 8.1 , 8.2

NJCCCS = 1.1, 1.2, 1.3, 1.4, 3.3, 3.5, 4.1, 4.2, 4.5, , 5.1, 5.2, 5.4, 9.1

NJTES = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.7, 4.8, 4.9, 4.10, 4.11, 4.14, 4.16, 6.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.12, 6.13, 6.14, 6.16, 6.17, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.25, 7.30, 7.35, 7.36, 7.42, 7.49, 7.51, 7.53, 7.54, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72, 7.74, 7.75, 7.76, 7.77, 7.81, 7.82, 7.84, 7.85, 7.86, 7.87, 7.88, 7.90, 7.94, 7.121, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, and 8.20

NTES = 3, 8, 9, 10, 11, 17, 19 and 20

Unit 6 – Color and the design process

Time = 4 Days

Goal: Students will gain knowledge pertaining to the design process, and its relationship to finishing a built structure.

Objectives: Students will be able to:

1. Review Design Elements and Principles
2. Analysis the perception given by different color in rooms
3. Discuss furniture placement

Audio-Visual needs: none

Computer needs/use: none

Assignments: teacher generated

Lab activities: None

Assessment method: traditional

Standards: Technology = 8.1 , 8.2

NJCCCS = 1.1, 1.3, 1.4, 1.5, 3.5, 4.1, 4.5, 5.2, 5.4, 9.1

NJTES = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.10, 4.11, 4.14, 4.16, 6.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.14, 6.16, 6.17, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.25, 7.30, 7.33, 7.35, 7.36, 7.42, 7.44, 7.45, 7.49, 7.51, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72, 7.74, 7.75, 7.76, 7.77, 7.81,

7.84, 7.85, 7.86, 7.87, 7.88, 7.90, 7.94, 7.106, 7.108, 7.121, 7.123,
7.124, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20
NTES = 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20

Unit 7 –Alternative Homes

Time = 10 Days

Goal: Students will study alternative homes and be able to identify and discuss the types, advantages, and drawbacks of alternative structures.

Objectives: Students will:

1. Study alternative dwellings
2. Present a presentation about an alternative structure.

Audio-Visual needs: Computer

Computer needs/use: Microsoft Word, Microsoft Excel, and Internet

Assignments: Student Research

Lab activities: None

Assessment method: Traditional

Standards: Technology = 8.1 , 8.2

NJCCCS = 1.2, 1.3, 1.4, 1.5, , 3.5, 4.1, 4.2, 4.3, 4.5, 5.2, 5.4, 9.1

NJTES = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.7, 4.8,
4.9, 4.10, 4.11, 4.14, 4.16, 6.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.14,
6.16, 6.17, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21,
7.22, 7.23, 7.25, 7.30, 7.33, 7.35, 7.36, 7.42, 7.44, 7.45, 7.49, 7.51,
7.53, 7.54, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72,
7.74, 7.75, 7.76, 7.77, 7.81, 7.82, 7.84, 7.85, 7.86, 7.87, 7.88, 7.90,
7.94, 7.106, 7.108, 7.121, 7.123, 7.124, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4,
8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20

Goal: Students will be provided a chance to show off their projects and summarize their experience throughout the Architectural program.

Objectives: Students will be able to:

1. Present an Advanced CAD 3D model.
2. Present a detailed Perspective or Presentation Drawing
3. Present a sectional view
4. Present Wood Model house

Audio-Visual needs: Computer

Computer needs/use: Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Internet and Architectural AutoCAD

Assignments: Presentation

Lab activities: None

Assessment method: Classwork

Authentic: Design portfolio and journal

Standards: Technology = 8.1 , 8.2

NJCCCS = 1.2, 1.4, 3.1, 3.3, 3.5, 4.2, 4.3, 4.5, 5.2,

NJTES = 1.1, 1.2, 1.6, 2.2, 2.5, 2.6, 2.7, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.7, 4.8, 4.9, 4.10, 4.11, 4.14, 4.15, 4.16, 6.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, 6.16, 6.17, 7.2, 7.3, 7.8, 7.9, 7.13, 7.15, 7.16, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.25, 7.30, 7.33, 7.35, 7.36, 7.42, 7.44, 7.45, 7.49, 7.51, 7.53, 7.54, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.72, 7.74, 7.75, 7.76, 7.77, 7.81, 7.82, 7.84, 7.85, 7.86, 7.87, 7.88, 7.90, 7.94, 7.106, 7.108, 7.121, 7.123, 7.124, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20

Materials/Resources:

Text: Spence, William. Architecture: Design-Engineering-Drawing. Peoria, IL: Glencoe/McGraw Hill, 1991.

Hepler, Donald, Wallach, Donald, and Hapler, Dana. Architecture: Drafting and Design. Peoria, IL: Glencoe/McGraw Hill, 1998.
AutoCAD Architectural Desktop User's Guide. Autodesk, Inc. 1999.
Curricular Resources Guide – TSA Competition Events Booklet. Goodheart-Willcox Publisher, June 2000.
Architectural Design and Drafting, 4th edition. Jefferis and Madsen

Tools: Drafting instrument and supplies
IBM Compatible Computer
Architectural AutoCAD program

Labs: Teacher Constructed Handouts

People: Individuals, such as professional masons, professional architects, professional contractors and et cetera, may be added to lessons, where needed and at the individuals convince.

Audio-Visual: Video: The American House: A guide to Architectural Styles.
Video: The Griffin One House
Video: Architect
Video: Architectural Design & Drafting Video Series – Demo Tape

Assessment:

A. Student Progress: The assessment of student progress in the objectives cited on the previous pages will be primarily by, but not limited to, the following criteria:

Class work – Each assignment will be given an individual point value. Students will be made aware of that value when assignments are handed out.

Quizzes – 25 Points

Participation /Use of Class Time – 25pts/Week

Projects – 50 Points

Final Project – 200 Points

Final Presentation - 100 Points

Letter Grade and Number Grade Equation

100 to 97.5 = A+	97.4 to 93.5 = A	93.4 to 90.1 = A-
90 to 87.5 = B+	87.4 to 83.5 = B	83.4 to 80.1 = B-
80 to 77.5 = C+	77.4 to 73.5 = C	73.4 to 70.1 = C-
70 to 67.5 = D+	67.4 to 63.5 = D	63.4 to 60.1 = D-
Below 60 = F		

Note: Authentic assessment methods are ways of evaluating student abilities in a process-based classroom; these methods include: design portfolios and journals, student presentations/demonstrations, oral exams, teacher observation, student self-assessment. The primary purpose of assessment is to assist the students in the learning process. When identified, student's strengths are used to help guide them toward areas in which they will excel. The teacher selects the most appropriate assessment method(s) for each behavioral objective during learning activities.

B. Periodic evaluation of objectives and this curriculum guide:

With the selection of a new text, every five years, administration request.

Next schedule evaluation date 8/11

Special Course Policies:

A typical week in course might include: Students will come into class and begin work on the drawing assignments with little to no instructions. The student will work on these assignments at their own pace, but must understand that there are deadlines to meet and missing those deadlines will hamper their grade.

Supplementary readings and instructors bibliography:

None

Homework, Extra Credit Policy

No homework will be given to the class; students will have plenty of time in class to finish the class work assignments. No extra credit assignments will be given; however students that show an extra enough to complete an elaborate assignment or students that go above and beyond the call of duty will be rewarded.