ARCHITECTURE 1
(Revised) MAY 2007
COURSE NUMBER 763

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Name of Course: Architecture 1
Level of course: 1.12
Prerequisites: None
Course number: 763
Number of credits: 5
Revised date and Teachers names: September 4, 2008 – Mr. Benjamin Kappler

Purpose: This first year course is designed to teach students important information in the field of residential architecture. Students will learn fundamental skills and concepts necessary for architectural planning, design, drawing, and construction. Students will learn about the hard work that goes into designing a house and the problems that arise during that task. Also, each student will be required to use knowledge gained from the course along with his/her creative abilities to complete an individual yearlong residential architectural project.

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 socioeconomic status.

General Objectives:

1. Students will learn about careers and opportunities that are available in the field of architecture.
2. Students will gain knowledge of the history of residential architecture and become familiar with traditional and modern residential architectural styles.
3. Students will gain knowledge in architectural drafting, architectural CAD drawing, and methods of presenting architectural work.
4. Students will gain knowledge of environmental impacts associated with residential architecture.
5. Students will gain knowledge of government, state, and local building codes.
6. Students will gain knowledge of basic home planning.
7. Students will gain knowledge of basic residential construction practices.
8. Students will gain knowledge of site planning and site considerations.
9. Students will apply knowledge gained during the course to plan a residence.

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

Objectives 1, 2, 3, 4, 5, 6, 7	Unit tests and quizzes
Objectives 2, 6, 7, 8	Independent activities
Objectives 1, 2, 6, 7	Involved lectures
Objectives 2, 3, 4, 5, 6, 7, 8, 9	Projects

Method of Instruction:
The course will be divided into small units for instructional purpose. Each unit will be assessed as stated above. As students learn information and practice the skills being taught, students will apply knowledge gained to their yearlong home design project.

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 there will be daily class work. 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 effect 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 average school day.

Standards Targeted Throughout this Curriculum

New Jersey Core Curriculum Content Standards (NJCCCS) =

STANDARD 8.1 (COMPUTER AND INFORMATION LITERACY) ALL STUDENTS WILL USE COMPUTER APPLICATIONS TO GATHER AND ORGANIZE INFORMATION AND TO SOLVE PROBLEMS.

A. Basic Computer Skills and Tools

5. Produce a multimedia project using text, graphics, moving images, and sound.

8. Discuss and/or demonstrate the capability of emerging technologies and software in the creation of documents or files.

B. Application of Productivity Tools

5. Select and use specialized databases for advanced research to solve real world problems.

6. Identify new technologies and other organizational tools to use in personal, home, and/or work environments for information retrieval, entry, and presentation.

9. Create and manipulate information, independently and/or collaboratively, to solve problems and design and develop products.

11. Create and manipulate information, independently and/or collaboratively, to solve problems and design and develop products.

STANDARD 8.2 (TECHNOLOGY EDUCATION) ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE NATURE AND IMPACT OF TECHNOLOGY, ENGINEERING, TECHNOLOGICAL DESIGN, AND THE DESIGNED WORLD AS THEY RELATE TO THE INDIVIDUAL, SOCIETY, AND THE ENVIRONMENT.

A. Nature and Impact of Technology

1. Use appropriate data to discuss the full costs, benefits and trade-offs, and risks related to the use of technologies.

3. Provide various examples of how technological developments have shaped human history.

B. Design Process and Impact Assessment

1. Analyze a given technological product, system, or environment to understand how the engineering design process and design specification limitations influenced the final solution.

4. Use a computer assisted design (CAD) system in the development of an appropriate design solution.

6. Create a technological product, system, or environment using given design specifications and constraints by applying design and engineering principles.

Standards for Technological Literacy (STL) =

Construction
• Different types of buildings
• Modern communities
• Construction designs
• Infrastructure

Technologies
• How parts of buildings fit
• Structures
• Foundations
• Construction processes and procedures
• Systems used
• Purpose of structures
• Requirements
• Building systems and subsystems • Maintenance, alterations, and renovation
• Prefabricated materials

Unit 1 – Background **Time** = 2 Days

Goal: Students will gain an understanding of the careers available in architecture and the basic tools needed.

Objectives: Students will gain knowledge in:

- Drawing preparation
- Basic drawing
- Dimensioning skills
- Lettering
- Supplementary views
- Applied Mathematics

Audio-Visual needs: none
Computer needs/use: none
Assignments: Teacher demonstration and lecture
Lab activities: Teacher generated assignments
Assessment method: Class work and Test/Quiz
Authentic: Teacher observation and Student self-assessment
Standards: CCWRS = 2.1, 2.2, 2.7, 2.9, 3.1, 3.2, 3.4, 3.8, 3.10, 3.11, 3.12, 3.13, 4.2, 4.3, 4.4, 4.5, 4.6, 4.9, 4.10

NJCCCS = 1.1, 1.5, 3.5, 4.7, 5.2, 5.3, 5.4, 6.3

NJTES = 1.2, 1.6, 1.12, 1.13, 1.14, 2.5, 2.6, 4.10, 4.15, 7.9, 7.15, 7.18, 7.20, 7.21, 7.23, 7.41, 7.45, 7.57, 7.84, 7.89, 7.94, 7.105, 7.106, 7.107, 7.108, 7.120, 7.121, 7.126, 7.127, 7.128, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 6, 7, 20

Unit 2 – Introduction to the Tools **Time** = 5 Days

Goal: Students will gain knowledge of the instruments used by an Architect in his field and will also gain the knowledge of how to use though instruments for the student's advantage.

Objectives: Students will be able to:

1. Understand the Instruments & Tools
    a. Describe all of the different tools
        i. T-square
        ii. Two Triangles
        iii. Architecture and Engineering Scales
        iv. French Curve
        v. Compass and Divider
        vi. Eraser Shield, Brush, and Powder
    b. The different types of pencils
    c. The different types of templates
    d. The different types of paper

Audio-Visual needs: **Computer**
Computer needs/use: **Microsoft PowerPoint Presentation**
Assignments: Teacher generated worksheet reviewing the material of the unit

Lab activities: **None**

Assessment method: **Class work and Test/Quiz**

Authentic: Teacher observation and Student self-assessment

Standards: CCWRS = 2.2, 3.8, 4.2, 4.3, 4.4, 4.55.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9

NJCCCS = 4.6, 4.7, 4.9, 5.2, 5.4

NJTES = 2.16, 3.6, 3.14, 4.1, 4.15, 7.9, 7.15, 7.16, 7.20, 7.21, 7.23, 7.54, 7.55, 7.57, 7.59, 7.60, 7.61, 7.62, 7.63, 7.82, 7.84, 7.85, 7.86, 7.87

NTES = 3, 4, 5, 6, 7, 8, 9, 11

Unit 3 – Introduction to Drawing **Time** = 3 Days

Goal: Students will gain knowledge of being able to letter in the proper architectural style and will be able to use the tools that were learned in a previous lesson to create simple activities.

Objectives: Students will gain knowledge in the field of:

1. Practice Drawing with Worksheets
    a. Drawing straight lines and angles
    b. Draw varies shapes
2. Practice Lettering

Audio-Visual needs: **None**
Computer needs/use: **None**
Assignments: Teacher generated worksheet reviewing the material of the unit

Lab activities: **None**
Assessment method: **Class work**

Authentic: **Design portfolios and journals**

Standards: CCWRS = 2.2, 3.8, 4.2, 4.3, 4.4, 4.5

NJCCCS = 4.1, 4.2, 4.7, 4.9, 4.15

NJTES = 3.6, 3.14, 4.1, 4.7, 4.8, 7.21, 7.53, 7.54, 7.55, 7.57, 7.59, 7.60, 7.61, 7.82, 7.84

NTES = 3, 4, 8, 9, 10, 11

Unit 4 – History **Time** = 3 Days

Goal: Students will gain an understanding of the history of Architecture, where it came from, what Architecture is now and where it is going.

Objectives: Students will be able to understand:

- Types of structures
- Styles/influences

Audio-Visual needs: Video and Computer
Computer needs/use: **Microsoft PowerPoint Presentation**
Assignments: Teacher generated worksheet reviewing the material of the unit

Lab activities: None

Assessment method: **Class work and Test/Quiz**

Authentic: Teacher observation and Student self-assessment

Standards: CCWRS = 2.1, 2.2, 2.7, 2.9, 3.1, 3.2, 3.4, 3.8, 3.10, 3.11, 3.12, 3.13, 4.2, 4.3, 4.4, 4.5, 4.6, 4.9, 4.10

NJCCCS = 1.1, 1.5, 3.5, 4.7, 5.2, 5.3, 5.4, 6.3

NJTES = 1.2, 1.6, 1.12, 1.13, 1.14, 2.5, 2.6, 4.10, 4.15, 7.9, 7.15, 7.18, 7.20, 7.21, 7.23, 7.41, 7.45, 7.57, 7.84, 7.89, 7.94, 7.105, 7.106, 7.107, 7.108, 7.120, 7.121, 7.126, 7.127, 7.128, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 6, 7, 20

Unit 5 – House Design **Time** = 20 Days

Goal: Students will gain an understanding of the basic elements of a house, the variations of those elements, and how to draft them.

Objectives: Students will be able to understand:

- 4 Basic types of houses
- Basic roof types
- Foundations
- Stairs
- Fireplace/ Chimneys
- Blue Print reading

Audio-Visual needs: Video and Computer
Computer needs/use: **Microsoft PowerPoint Presentation**
Assignments: Teacher generated worksheet reviewing the material of the unit

Lab activities: None

Assessment method: **Class work and Test/Quiz**

Authentic: Teacher observation and Student self-assessment

Standards: CCWRS = 2.1, 2.2, 2.7, 2.9, 3.1, 3.2, 3.4, 3.8, 3.10, 3.11, 3.12, 3.13, 4.2, 4.3, 4.4, 4.5, 4.6, 4.9, 4.10

NJCCCS = 1.1, 1.5, 3.5, 4.7, 5.2, 5.3, 5.4, 6.3

NJTES = 1.2, 1.6, 1.12, 1.13, 1.14, 2.5, 2.6, 4.10, 4.15, 7.9, 7.15, 7.18, 7.20, 7.21, 7.23, 7.41, 7.45, 7.57, 7.84, 7.89, 7.94, 7.105, 7.106, 7.107, 7.108, 7.120, 7.121, 7.126, 7.127, 7.128, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 6, 7, 20

Unit 6 – Inside your House **Time** = 40 Days

Goal: Students will gain an understanding of the different rooms and the specific areas of a residential dwelling and the how to improve those rooms and areas.

Objectives: Students will gain knowledge in the field of:

1. Sleeping Area
2. Living Area
3. Service Area
4. Traffic Area
5. Windows & Doors

Audio-Visual needs: Video and Computer
Computer needs/use: **Microsoft PowerPoint Presentation**
Assignments: Teacher generated worksheet reviewing the material of the unit

Lab activities: None

Assessment method: **Class work and Test/Quiz**

Authentic: Teacher observation and Student self-assessment

Standards: CCWRS = 2.1, 2.2, 2.7, 2.9, 3.1, 3.2, 3.4, 3.8, 3.10, 3.11, 3.12, 3.13, 4.2, 4.3, 4.4, 4.5, 4.6, 4.9, 4.10

NJCCCS = 1.1, 1.5, 3.5, 4.5, 4.7, 4.12, 4.13, 4.15, 5.2, 5.4

NJTES = 1.2, 1.6, 1.12, 1.13, 1.14, 2.5, 2.6, 4.10, 4.15, 7.9, 7.15, 7.18, 7.20, 7.21, 7.23, 7.41, 7.45, 7.57, 7.84, 7.89, 7.94, 7.105, 7.106, 7.107, 7.108, 7.120, 7.121, 7.126, 7.127, 7.128, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 6, 7, 8, 9, 10, 16, 20

Unit 7 – Design Elements **Time** = 40 Days

Goal: Students will gain an understanding of the procedure of drawing an Architecture floor and elevation plan. Students will also gain an understanding of the different types of foundations, roofs and framing choices for a residential dwelling.

Objectives: Students will gain knowledge in the field of:

1. Drawing & Designing Floor Plans
    a. How to draw a floor plan
    b. Concepts of why rooms are where they are
        i. Where to place rooms

ii. Where not to place rooms

2. Elevation plans
    a. How to draw elevations
    b. How the sectional drawing ties in to the elevation
    c. What is shown on the elevation
    d. What details can be shown
3. Roofs
    a. Different styles of roofs
    b. How to determine the pitch
    c. Different styles of attics

Audio-Visual needs: Video and Computer
Computer needs/use: **Microsoft PowerPoint Presentation**
Assignments: Teacher generated worksheet reviewing the material of the unit

Lab activities: None

Assessment method: **Class work and Test/Quiz**

Authentic: Teacher observation and Student self-assessment

Standards: CCWRS = 2.1, 2.2, 2.7, 2.9, 3.1, 3.2, 3.4, 3.8, 3.10, 3.11, 3.12, 3.13, 4.2, 4.3, 4.9, 4.10

NJCCCS = 1.1, 1.6, 3.5, 4.13, 4.15, 4.16, 5.2, 5.4, 5.5, 6.8

NJTES = 1.2, 1.6, 1.12, 1.13, 1.14, 2.5, 2.6, 4.10, 4.15, 7.9, 7.15, 7.18, 7.20, 7.21, 7.23, 7.41, 7.45, 7.57, 7.84, 7.89, 7.94, 7.105, 7.106, 7.107, 7.108, 7.120, 7.121, 7.126, 7.127, 7.128, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 3, 4, 5, 6, 7, 8, 9, 10, 11, 20

Unit 8 – Introduction to Architectural AutoCAD **Time** = 30 Days

Goal: Students will gain knowledge in the Architectural AutoCAD program and be able to use the program to perform simple tasks.

Objectives: Students will gain knowledge in the field of:

1. Instruction of the Program
    a. Shown how to draw walls
    b. Shown how to draw windows
    c. Shown how to draw doors
    d. Shown how to draw second floor
    e. Shown how to add items from the template

Audio-Visual needs: Computer
Computer needs/use: **Architectural AutoCAD**
Assignments: Drawing assignment
Lab activities: Drawing of a house on the Architectural AutoCAD program
Assessment method: Class work and Lab
Authentic: Design portfolios and journals

Standards: CCWRS = 2.1, 2.2, 2.3, 2.5, 2.6, 2.9, 2.10, 3.1, 3.2, 3.10, 3.11, 3.13, 3.15, 4.3, 4.9, 4.10

NJCCCS = 1.2, 1.3, 1.6, 3.5, 4.1, 4.2, 4.5, 4.6, 4.7, 4.9, 4.14, 4.15, 5.4, 5.5

NJTES = 2.5, 2.16, 3.6, 3.14, 4.1, 4.7, 4.8, 4.9, 6.1, 6.4, 6.6, 6.7, 6.8, 6.10, 6.13, 7.2, 7.16, 7.18, 7.20, 7.21, 7.41, 7.44, 7.45, 7.53, 7.54, 7.55, 7.56, 7.57, 7.59, 7.60, 7.61, 7.82, 7.84, 7.85, 7.86, 7.87, 7.89

NTES = 8, 9, 10, 11, 20

Unit 9 – Beginning to Architecture **Time** = 30 Days

Goal: Students will be able to use their learned lessons of Architecture to demonstrate their skill of drawing and understanding a floor plan and then exhibiting that lesson through drawing.

Objectives: Students will be able to:

1. Draw out a house from a handout
    a. Hand-draw a house that was already drawn out for them
    b. Hand out will consist of the following:
        i. Kitchen
        ii. Dining Room
        iii. Living Room
        iv. 2 Bedrooms
        v. Bathroom
        vi. Foyer
        vii. Closet
2. Draw out a house from a hand out on CAD
    a. The same handout for the hand drawing will be duplicated in Architectural CAD

Audio-Visual needs: None
Computer needs/use: None
Assignments: Drawing Assignment

Lab activities: None
Assessment method: Class work

Authentic: **Design portfolios and journals and Teacher observation**

Standards: CCWRS = 2.1, 2.2, 2.3, 2.5, 2.6, 2.9, 2.10, 3.1, 3.2, 3.10, 3.11, 3.13, 3.15, 4.3, 4.9, 4.10

NJCCCS = 1.2, 1.3, 1.6, 3.5, 4.1, 4.2, 4.5, 4.6, 4.7, 4.9, 4.10, 4.15

NJTES = 1.2, 1.6, 1.14, 2.5, 2.6, 2.16, 2.21, 3.6, 3.14, 4.1, 4.3, 4.7, 4.8, 4.9, 4.10, 6.1, 6.4, 6.6, 6.7, 6.8, 6.10, 6.13, 7.2, 7.9, 7.12, 7.15, 7.16, 7.18, 7.20, 7.21, 7.23, 7.41, 7.44, 7.45, 7.53, 7.54, 7.55, 7.56, 7.57, 7.59, 7.60, 7.61, 7.62, 7.63, 7.74, 7.75, 7.76, 7.77, 7.82, 7.84, 7.85, 7.86, 7.87, 7.89, 7.126, 7.127, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 8, 9, 10, 11

Unit 10 – Presentation **Time** = 7 Days

Goal: Students will be able to express their knowledge that was gained through the course of a year in the field of Architecture and how they applied that knowledge to their yearlong assignment.

Objectives: Students will be able to:

1. Make a presentation presenting their house to the rest of the class
    a. The presentation will be formal and show detail and things the student is proud of

Audio-Visual needs: **On screen demonstration**
Computer needs/use: Architectural AutoCAD, Microsoft Word, and Microsoft PowerPoint

Assignments: Give an oral presentation to the class about your dream house

Lab activities: None
Assessment method: Class work.

Authentic: **Student presentations/demonstrations**

Standards: CCWRS = 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 3.1, 3.2, 3.4, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.9, 4.11

NJCCCS = 1.2, 1.4, 1.5, 3.1, 3.3, 3.5, 4.5

NJTES = 1.2, 1.6, 2.5, 2.6, 2.21, 3.6, 3.14, 4.1, 4.3, 4.7, 4.8, 4.9, 4.10, 4.15, 6.1, 6.4, 6.6, 6.7, 6.8, 6.10, 6.13, 7.2, 7.9, 7.12, 7.15, 7.16, 7.20, 7.21, 7.35, 7.41, 7.44, 7.45, 7.53, 7.54, 7.55, 7.56, 7.57, 7.59, 7.60, 7.61, 7.62, 7.63, 7.82, 7.84, 7.85, 7.86, 7.87, 7.89, 7.94, 7.105, 7.106, 7.108, 7.120, 7.121, 7.126, 7.127, 7.128, 8.1, 8.2, 8.3, 8.4, 8.5, 8.11, 8.17, 8.18, 8.20

NTES = 8, 9, 10, 11

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.

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:

Marking Period 1

		Raw Grade	Percentage	Final Number	Letter Grade
Classwork and Drawings			X 75%		
Quizzes and Tests			X 25%		

Marking Period 2

		Raw Grade	Percentage	Final Number	Letter Grade
Classwork and Drawings			X 75%		
Quizzes and Tests			X 25%		

Marking Period 3

		Raw Grade	Percentage	Final Number	Letter Grade	
Classwork and Drawings			X 75%			
Quizzes and Tests			X 25%			

Marking Period 4

		Raw Grade	Percentage	Final Number	Letter Grade
Classwork and Drawings			X 75%		
Quizzes and Tests			X 25%		

**Participation and Utilization of Class Time count as a quiz grade and are scored throughout each quarter.

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.

Midterm and final exams last modified 7/2008

Next schedule evaluation date *8/2012*

Special Course Policies:

A typical week in course might include:

> Students will be involved in a lecture about Architecture, its fields and purpose. Handouts emphasizing the lesson that was just taught and possibly a quiz will follow up the lectures by the end of the week. Active student participation is required, and is necessary to understand the lessons that are being taught.

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. Students who cannot finish the given assignment in the allotted class time are expected to work on their own time to complete the assignment.

Supplementary readings and instructors bibliography:

None

Homework, Extra Credit Policy

No extra credit assignments will be given; however students that shows an extra enough to complete an elaborate assignment or students that go above and beyond the call of duty will be rewarded.