Cedar Grove School District Cedar Grove, NJ

2016 Grades 9-12 Advanced Design



Revised 2017
Approved by the Cedar Grove Board of Education

Superintendent of Schools Mr. Michael J. Fetherman

Board of Education

Mrs. Christine Dye, President Mr. Frank Mandala, Vice-President Mr. Peter Prvulovic Mr. David Schoner Mr. Vincent Vollero

Course Description

Advanced Design gives students the flexibility to choose from one or more of the following design areas for specialization under the differentiated supervision of the teacher:

- **Architectural** students will explore topics such as site preparation, blue prints (how to draw and read them), home design styles (bi-levels, colonials, ranches), construction estimating, computer drafting, and model building.
- **Interior** students will learn about building materials, paint and paint finishes, lighting, carpeting, budgeting for improvements, and kitchen and bath layouts.
- Fashion students will design and make their own fashions.
- **Product** students will learn what is involved in making a product, will understand what a target market is, will explore the various selling techniques, and then design and make a product.

This curriculum was written in accordance with the

2014 NEW STUDENT LEARNING STANDARDS FOR VISUAL AND PERFORMANING ARTS,

and the

2014 NEW JERSEY STUDENT LEARNING STANDARDS STANDARDS FOR 21ST CENTURY LIFE AND CAREERS,

Unit 1 – Advanced Architectural Design

Course Objective(s)	Student Objectives
Examine site preparation	Locate a home on a plot of land
	 Comprehend pre-building stages
	Develop site drawings
Develop an understanding of architectural	Read blue prints
design blue prints and drafting- equipment	Use drafting equipment
	 Demonstrate drafting techniques
Examine the various styles of home designs	 Design and draw room layouts
	 Conceptualize room sizes in relation to
	measurements
	Explore various styles of homes, i.e. ranch,
	colonial, etc.
Prepare construction estimates	Calculate material costs
	Discriminate between available materials
	Explain budgeting
Classify building materials	 Identify the compositions of various materials
	Justify the selection of particular materials for
	different building needs of a home
Apply knowledge of drafting equipment to	Develop a full set of architectural construction
construction architectural construction drawings	drawings
	top elevation
	front elevation
	side elevation
	 first and second floor plans
Utilize the computer to draw various elevations	Use the computer to generate two dimensional
(CAD)	views of a home (using Google sketch)
	front elevation
	■ side elevation
Apply knowledge of building materials and	Build an actual scale model of a home from
engineering	construction drawings students created
techniques to construct a model of a home	 Show 2x4 stick construction
	 Show all rough openings for doors and
	windows
	 Simulate site to scale

2014 New Jersey Student Learning Standards for Visual and Performing Arts

- **1.1.12.D.1** Distinguish innovative applications of the elements of art and principles of design in visual artworks from diverse cultural perspectives and identify specific cross-cultural themes.
- **1.3.12.D.1** Synthesize the elements of art and principles of design in an original portfolio of two- and three-dimensional artworks that reflects personal style and a high degree of technical proficiency and expressivity
- **1.3.12.D.2** Produce an original body of artwork in one or more art mediums that demonstrates mastery of visual literacy, methods, techniques, and cultural understanding.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers:

Architecture & Construction Cluster

- **9.3.12.AC.1** Use vocabulary, symbols and formulas common to architecture and construction.
- **9.3.12.AC.2** Use architecture and construction skills to create and manage a project.
- **9.3.12.AC.6** Read, interpret and use technical drawings, documents and specifications to plan a project.
- **9.3.12.AC-CST.6** Manage relationships with internal and external parties to successfully complete construction projects.
- **9.3.12.AC-DES.1** Justify design solutions through the use of research documentation and analysis of data.
- **9.3.12.AC-DES.2** Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
- **9.3.12.AC-DES.3** Describe the requirements of the integral systems that impact the design of buildings.
- **9.3.12.AC-DES.6** Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
- 9.3.12.AC-DES.7 Employ appropriate representational media to communicate concepts and project design.
- **9.3.12.AC-DES.8** Apply standards, applications and restrictions pertaining to the selection and use of construction materials, components and assemblies in the project design

2014 New Jersey Student Learning Standards for 21st Century Life and Careers: Arts, A/V Technology & Communications Career Cluster

- **9.3.12.AR-VIS.2** Analyze how the application of visual arts elements and principles of design communicate and express ideas.
- 9.3.12.AR-VIS.3 Analyze and create two and three-dimensional visual art forms using various media

Unit 2 – Advanced Interior Design

Course Objective(s)	Student Objectives
Course Objective(s) Characterize colors and finishes of paint and how	Student Objectives Distinguish between various paint qualities
• • • • • • • • • • • • • • • • • • •	, ,
they contribute to a room's mood and	Distinguish between various paint finishes
practicality	Interpret differences in color meaning
Examine the differences between laminate	Determine the advantages and disadvantages of
flooring and hardwood flooring as they pertain	using laminate flooring
to specific use in interior design	Analyze the composition of laminate flooring
	 Determine the advantages and disadvantages of
	using hardwood flooring
Identify the various types of vinyl flooring and	Explain the differences between vinyl composition
the application of each	floors (VCT) and vinyl self-stick tiles
	 Explain the proper usage for each
	 Identify new or old (asbestos) floor tiling and
	 understand the safety issues of old tiling
Identify the various types of hard surface	Distinguish differences between the following
products selected for their durability, price, and	tiles:
applications	 Marble
	 Granite
	 Slate
	 Porcelain
	 Ceramic
	Determine the advantages and disadvantages of
	using each
	Identify situations for using each
Examine the various types of carpets as they	Distinguish differences between the following
relate to durability, price, and applications	carpets:
	• Nylon
	Polyester
	• Olefin
	Determine the advantages and disadvantages of
	using each
Compare and contrast differences in plumbing	Selecting the proper plumbing fixtures based
fixtures that are available for kitchens and baths	upon style, durability, and price:
includes that are available for kitchens and satis	Kitchen
	Bathroom
	Master bathroom
Examine various types of countertops and	Compare and contrast options for countertop and
vanities available for kitchen and bathrooms	vanities in:
tamacs available for Ritchell and Datin Collis	Kitchen
	Bathroom
	Master bathroom
Comprehend the various types of lighting and	Differentiate between the types of light bulbs
Comprehend the various types of lighting and	available
the usage of each in a home	
	Explain what accent lighting is and how it is used. Find in the ways of law years a lighting.
	 Explain the uses of low voltage lighting

	 Using energy efficient lighting
Understand the characteristics of the different	 Name and explain the following design styles:
types of design styles	 Contemporary
	Modern
	Country
	Early American
Take a customer's budget and pricing	 Estimate the following room costs:
restrictions into consideration, decorate a room	Kitchen
	Bathroom
	 Master bathroom
	 Choose fixtures based upon budget and
	style
Understand the importance of asking the correct	 Create a thorough list of questions to ask a client
qualifying questions of a potential client	that will determine styles, fixtures, lighting,
	carpeting, money restraints, etc.

2014 New Jersey Student Learning Standards for Visual and Performing Arts

- **1.1.12.D.1** Distinguish innovative applications of the elements of art and principles of design in visual artworks from diverse cultural perspectives and identify specific cross-cultural themes.
- **1.3.12.D.1** Synthesize the elements of art and principles of design in an original portfolio of two- and three-dimensional artworks that reflects personal style and a high degree of technical proficiency and expressivity.
- **1.3.12.D.2** Produce an original body of artwork in one or more art mediums that demonstrates mastery of visual literacy, methods, techniques, and cultural understanding.
- **1.3.12.D.4** Analyze the syntax and compositional and stylistic principles of two- and three-dimensional artworks in multiple art media (including computer-assisted artwork), and interpret themes and symbols suggested by the artworks.
- **1.3.12.D.5** Identify the styles and artistic processes used in the creation of culturally and historically diverse two- and three-dimensional artworks, and emulate those styles by creating an original body of work.
- **1.4.12.A.1** Use contextual clues to differentiate between unique and common properties and to discern the cultural implications of works of dance, music, theatre, and visual art.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers: Architecture & Construction Career Cluster

- **9.3.12.AC.2** Use architecture and construction skills to create and manage a project.
- **9.3.12.AC.6** Read, interpret and use technical drawings, documents and specifications to plan a project.
- **9.3.12.AC-CST.7** Compare and contrast the building systems and components required for a construction project.
- **9.3.12.AC-CST.9** Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
- **9.3.12.AC-DES.2** Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues
- **9.3.12.AC-DES.5** Identify the diversity of needs, values and social patterns in project design, including accessibility standards.
- **9.3.12.AC-DES.6** Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
- **9.3.12.AC-DES.7** Employ appropriate representational media to communicate concepts and project design.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers: Arts, A/v Technology & Communications Career Cluster

- **9.3.12.AR-VIS.2** Analyze how the application of visual arts elements and principles of design communicate and express ideas.
- 9.3.12.AR-VIS.3 Analyze and create two and three-dimensional visual art forms using various media.

Unit 3 – Advanced Product Design

Course Objective(s)	Student Objectives
Investigate the design stages when creating a new product	 Conceptualize the development of a new product Summarize the effects of product development on people and society Rationalize the need for new products or product revisions
Analyze the various target markets and assess their economic impact	 Evaluate products according to age, gender, race, price, occupation, geographic residency, etc. Explain the difference between a customer and a consumer
Describe and implement selling strategies	 Recognize the different marketing techniques (emotion, guilt, etc.)
Explain and cite examples of price points	 Relate a product's features to its price Distinguish differences between entry level and high end products
Construct a model of a product utilizing target market, selling strategies, and price points	 Combine all selling techniques and strategies to construct a product package Sketch the product Draw the product to scale Construct the product Decorate the product Create a marketing strategy to sell the product Give a fifteen-minute presentation on the product and its usefulness
Explore the differing life cycles of a product	Explain the steps in the life cycle of a product: design, manufacture, and recycling
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2014 New Jersey Student Learning Standards for Visual and Performing Arts

- **1.2.12.A.1** Determine how dance, music, theatre, and visual art have influenced world cultures throughout history.
- **1.2.12.A.2** Justify the impact of innovations in the arts (e.g., the availability of music online) on societal norms and habits of mind in various historical eras.
- **1.1.12.D.1** Distinguish innovative applications of the elements of art and principles of design in visual artworks from diverse cultural perspectives and identify specific cross-cultural themes.
- **1.3.12.D.1** Synthesize the elements of art and principles of design in an original portfolio of two- and three-dimensional artworks that reflects personal style and a high degree of technical proficiency and expressivity.
- **1.3.12.D.2** Produce an original body of artwork in one or more art mediums that demonstrates mastery of visual literacy, methods, techniques, and cultural understanding.
- **1.3.12.D.4** Analyze the syntax and compositional and stylistic principles of two- and three-dimensional artworks in multiple art media (including computer-assisted artwork), and interpret themes and symbols suggested by the artworks.
- **1.3.12.D.5** Identify the styles and artistic processes used in the creation of culturally and historically diverse two- and three-dimensional artworks, and emulate those styles by creating an original body of work.

1.4.12.B.3 Determine the role of art and art-making in a global society by analyzing the influence of technology on the visual, performing, and multimedia arts for consumers, creators, and performers around the world.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers: Architecture & Construction Career Cluster

- **9.3.12.AC-DES.2** Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
- **9.3.12.AC-DES.5** Identify the diversity of needs, values and social patterns in project design, including accessibility standards.
- **9.3.12.AC-DES.6** Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
- **9.3.12.AC-DES.7** Employ appropriate representational media to communicate concepts and project design.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers: Arts, A/V Technology & Communications Career Cluster

- **9.3.12.AR-VIS.2** Analyze how the application of visual arts elements and principles of design communicate and express ideas.
- 9.3.12.AR-VIS.3 Analyze and create two and three-dimensional visual art forms using various media.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers: Marketing Career Cluster

- **9.3.MK.8** Obtain, develop, maintain and improve a product or service mix in response to market opportunities.
- **9.3.MK.9** Communicate information about products, services, images and/or ideas to achieve a desired outcome.
- **9.3.MK.10** Use marketing strategies and processes to determine and meet client needs and wants.
- 9.3.MK-RES.2 Design and conduct research activities to facilitate marketing business decisions.
- **9.3.MK-RES.3** Use information systems and tools to make marketing research decisions.
- **9.3.MK-SAL.1** Access, evaluate and disseminate sales information
- 9.3.MK-SAL.2 Apply sales techniques to meet client needs and wants.

Unit 4 – Advanced Communication Design

Course Objective(s)	Student Objectives
Illustrate and design a magazine around a central	Choose writing styles to match audience
theme incorporating the use of technology	 Structure content for target audience
	Recognize people as a target market
Interpret how a magazine has an effect on	 Determine the influence of writing on society
people and society	 Discuss how the written word has helped to
	shape human history
	 Discuss the various parts of a magazine and what
	each must contain
Conceptualize a topic for a magazine based upon	Brainstorm target audiences based upon their
specific target audiences	own interests, talents and hobbies.
	 Choose target audience that will be most
	interested in "purchasing" their magazine.
Illustrate ideas on paper	 Design and layout on drawing paper a 20 page
	magazine that targets specific people and
	interests
Incorporate writing into the body of the	Write articles according to magazine genre
magazine	
Combine design layout and articles to create a	 Utilizing technology, compose a twenty-page
magazine	magazine using the design layout and written
	articles
Summarize contents of magazine and present to	Formulate a ten-minute oral presentation
class	explaining their magazine and its appeal to a
	certain group of people
2014 Nove Jorgay Student Learning	Standards for Visual and Borforming Arts

2014 New Jersey Student Learning Standards for Visual and Performing Arts

- **1.2.12.A.1** Determine how dance, music, theatre, and visual art have influenced world cultures throughout history.
- **1.2.12.A.2** Justify the impact of innovations in the arts (e.g., the availability of music online) on societal norms and habits of mind in various historical eras.
- **1.1.12.D.1** Distinguish innovative applications of the elements of art and principles of design in visual artworks from diverse cultural perspectives and identify specific cross-cultural themes.
- **1.3.12.D.1** Synthesize the elements of art and principles of design in an original portfolio of two- and three-dimensional artworks that reflects personal style and a high degree of technical proficiency and expressivity.
- **1.3.12.D.2** Produce an original body of artwork in one or more art mediums that demonstrates mastery of visual literacy, methods, techniques, and cultural understanding.
- **1.3.12.D.4** Analyze the syntax and compositional and stylistic principles of two- and three-dimensional artworks in multiple art media (including computer-assisted artwork), and interpret themes and symbols suggested by the artworks.
- **1.4.12.B.3** Determine the role of art and art-making in a global society by analyzing the influence of technology on the visual, performing, and multimedia arts for consumers, creators, and performers around the world.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers:
Arts, A/V Technology & Communications Career Cluster

- **9.3.12.AR.1** Analyze the interdependence of the technical and artistic elements of various careers within the Arts, A/V Technology & Communications Career Cluster.
- **9.3.12.AR-JB.2** Demonstrate writing processes used in journalism and broadcasting.
- 9.3.12.AR-PRT.2 Demonstrate the production of various print, multimedia or digital media products.
- **9.3.12.AR-VIS.1** Describe the history and evolution of the visual arts and its role in and impact on society.
- **9.3.12.AR-VIS.2** Analyze how the application of visual arts elements and principles of design communicate and express ideas.
- 9.3.12.AR-VIS.3 Analyze and create two and three-dimensional visual art forms using various media.

2014 New Jersey Student Learning Standards for Technology

- **8.1.12.C.1** Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.
- **8.1.12.E.1** Produce a position statement about a real world problem by developing a systematic plan of investigation with peers and experts synthesizing information from multiple sources.
- **8.2.12.A.1** Propose an innovation to meet future demands supported by an analysis of the potential full costs, benefits, trade-offs and risks, related to the use of the innovation.

Unit 5 - Advanced Automotive Design

Course Objective(s)	Student Objectives
Differentiate and interpret the forces that act	 Interpret how each of the following forces acts
upon an automobile	upon an automobile:
	Gravity
	 Drag
	Thrust
	Friction
	 Lift
	Wind resistance
Discuss how the automobile has shaped our	Explore impact on:
society	History
	Business
	Jobs
	 The economy
	 What did it replace
Investigate the components involved in the	 Demonstrate understanding of the following
design and construction of an automobile	through the construction of a race car:
	 Designing and construction
	Modeling/shaping
	Propulsion
	 Understanding speed
	 Calculating MPH
Demonstrate knowledge of mechanical drafting	 Using the Pro-E Engineering Software, illustrate
using the computer to design and build objects	the ability to draw the following objects:
	Flat washers
	 Sports bottle
	 Cylinders simulating an orbiting space
	station

2014 New Jersey Student Learning Standards for Visual and Performing Arts

- **1.2.12.A.2** Justify the impact of innovations in the arts (e.g., the availability of music online) on societal norms and habits of mind in various historical eras.
- **1.1.12.D.1** Distinguish innovative applications of the elements of art and principles of design in visual artworks from diverse cultural perspectives and identify specific cross-cultural themes.
- **1.3.12.D.2** Produce an original body of artwork in one or more art mediums that demonstrates mastery of visual literacy, methods, techniques, and cultural understanding.
- **1.3.12.D.4** Analyze the syntax and compositional and stylistic principles of two- and three-dimensional artworks in multiple art media (including computer-assisted artwork), and interpret themes and symbols suggested by the artworks.
- **1.4.12.B.3** Determine the role of art and art-making in a global society by analyzing the influence of technology on the visual, performing, and multimedia arts for consumers, creators, and performers around the world.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers: Architecture & Construction Career Cluster

9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.

- **9.3.12.AC-DES.6** Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
- 9.3.12.AC-DES.7 Employ appropriate representational media to communicate concepts and project design.

2014 New Jersey Student Learning Standards for 21st Century Life and Careers: Arts, A/V Technology & Communications Career Cluster

9.3.12.AR-VIS.3 Analyze and create two and three-dimensional visual art forms using various media.

2014 New Jersey Student Learning Standards for Technology

- **8.1.12.C.1** Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.
- **8.1.12.E.1** Produce a position statement about a real world problem by developing a systematic plan of investigation with peers and experts synthesizing information from multiple sources.
- **8.2.12.A.1** Propose an innovation to meet future demands supported by an analysis of the potential full costs, benefits, trade-offs and risks, related to the use of the innovation.
- **6.2.12.C.3.d** Determine how, and the extent to which, scientific and technological changes, transportation, and new forms of energy brought about massive social, economic, and cultural changes

Suggested Activities

- Lecture
- Class discussions
- Student presentations
- Debates
- Cooperative Learning structures
- Guided practice
- Performance assessments
- Projects
- · Simulation and modeling activities
- Technology infusion
- Learning Styles activities
- Differentiated Instruction
- Research
- · Architectural drafting
- Interior designing and decorating
- Building scale models of homes

Suggested Resources

Textbook:

Paint &Color, Lowes Company

Supplementary Materials

List to include but not limited to...

- Green Source, McGraw Hill & Co.
- The Kellogg Brothers: Corn Flake Kings. A & E Videos.

Websites:

- http://www.shawfloors.com
- http://www.historychannel.com
- http://www.discovervchannel.com
- http://www.googlesketchup.com

Equipment

- Architectural scale
- T-squares
- Drawing boards
- Triangles