

OUTCOMES BASED LEARNING MATRIX

Course: PLUMBING AND HEATING ARCH 204

Department: _____

ARCHITECTURE

Domestic water supply, piping, and waste disposal systems are studied. Heating, ventilating systems, and energy conservation are analyzed. The interrelation of building design and building environmental control systems is considered. Charts and tables from professional level references are used. Field trips, reports, and class projects are used to build skill in applying reference material. Lecture: 2 hours Laboratory: 4 hours Prerequisites: Survey of Physics (PHYS131) or Technical Physics I (PHYS141) or College Physics I (PHYS151) or General Physics I (PHYS161); and Introductory Algebra (MATH101) or higher or waiver by placement testing results; or Permission of Instructor

COURSE OUTCOMES	OUTCOMES ACTIVITIES	ASSESSMENT TOOLS
Understand the basics of psychrometrics.	Read text Study related section of Architectural Graphic Standards Interpret and mark up charts in class TS, QS, R	Quiz Evaluation of application of graphical method in later project applications TS, OC, QS, R
Compute heat loss and gain in a building.	Read text Study related section of Architectural Graphic Standards Generate a building design responding to program requirements including minimizing heat loss Generate wall section drawings and present TS, QS, R	Quiz Team project evaluation Quiz Oral exam during presentation Evaluation of topic in final design project TS, QS, QS, R
Read professional plumbing, heating, ventilation and air conditioning drawings.	Read text Study related section of Architectural Graphic Standards Review topics from other related courses including Working Drawings I CT, TS, OC, QS,	Quiz Evaluation of print reading in class TS, QS
Generate basic plumbing, heating, ventilation and air conditioning drawings. Establish minimum facilities requirements based on the Plumbing Code and Access Code.	Study hand out excerpt from the Massachusetts Fuel gas and plumbing Code Read text Study related section of Architectural Graphic Standards Generate diagrams and plans CT, TS, QS, R	Quiz Team project Individual project Critiqued building design. Evaluation of topic in final design project TS, OC

Understand the basic HVAC systems used in residential commercial and institutional buildings.	Read text Study related section of Architectural Graphic Standards Visit and study mechanical room at Canton MCC Diagram the system TS, QS, R	Quiz Evaluate diagrams TS, QS, R
Compute annual energy costs.	Read text Study related section of Architectural Graphic Standards TS, QS	Quiz Team project Evaluation of topic in final design project TS, QS, OC
Compare traditional and evolving energy sources and systems.	Read text Study related section of Architectural Graphic Standards Formal presentation with graphics, references, calculations and oral comments and answer CT, TS, OC, QS, R, W	Quiz Team project Question and answer period during presentation. Critiqued building design. Evaluation of topic in final design project CT, TS, OC, QS, R, W
Compute demand and first cost estimates.	Read text Study related section of Architectural Graphic Standards TS, QS	Quiz Team project TS, QS
Understand the basic water supply and wastewater systems used in residential commercial and institutional buildings.	Read text Study related section of Architectural Graphic Standards Review topics from other related courses especially Construction Planning TS	Quiz Team project TS
Understand the site and roof water drainage systems used in residential commercial and institutional buildings.	Read text Study related section of Architectural Graphic Standards Review topics from other related courses especially Construction Planning. Preview elements of Site Design TS, QS	Quiz Team project Evaluation of topic in final design project TS, QS

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Core Competencies abbreviations: Critical Thinking (CT), technology skills (TS), oral communications (OC), quantitative skills (QS), reading ®, writing (W)