SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	Residential Construction II		
CODE NO. :	HMI 200	**SEMESTER:**	3
PROGRAM:	Home Inspection		
AUTHOR:	Al Tucci		
PROFESSOR:	Sam Spadafora		
DATE:	January 2015	**PREVIOUS OUTLINE DATED:**	January 2014

APPROVED:

"Corey Meunier"

CHAIR

TOTAL CREDITS:	5
PREREQUISITE(S):	Residential Construction I
HOURS/WEEK:	5

For additional information, please contact Corey Meunier, Chair
School of Technology & Skilled Trades
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I. COURSE DESCRIPTION:

This course is a continuation of Residential Construction I. The student will continue to build and expand knowledge and skills in relevant topic areas, including floor systems, wall, ceilings and roofing systems and finishes, windows and doors, rough openings, stair design, vapour barriers, thermal ratings, etc. and exterior finishes (siding, masonry, openings) as well as chimneys and fireplaces. The student will learn through hands on application of theory taught during the course.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Adhere to health and safety, and current construction related legislation and practices.

Potential Elements of the Performance:

- Demonstrate safe work practices including injury prevention and the use of personal protective equipment
- Use tools and equipment according to specified direction / instructions

2. Understand, layout and assemble wall, ceiling and roof assemblies according to industry standards.

Wall and Ceiling Systems**:** Potential Elements of the Performance:

- Types of wall framing systems including platform, balloon and post and beam
- Plate layout, wall sections and framing connections
- Girder support
- Window, door and specialty openings
- Ceiling framing
- Assembly and erection of interior and exterior walls

Roof Systems: Potential Elements of the Performance:

- Types of roofs and roof supports
- Parts of a roof frame
- Layout terms and principles, unit measurements
- Framing plans
- Types of rafters and common rafter sizes
- Using a framing square, speed square and rafter table
- Roof truss construction
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3. Describe, prepare and install roofing, decks, and materials.

Potential Elements of the Performance:

- Define roofing and sheathing terms
- List material types, including decking
- Prepare roof decks
- Select appropriate roofing materials for various slopes and conditions
- Types of roof coverings including built up roofs
- Demonstrate correct nailing patterns, gutter positioning and material estimating

4. Understand, describe and demonstrate proper window and door installation and replacement procedures.

Potential Elements of the Performance:

- Discuss standards for window and door fabrication
- Identify window and door types
- Calculate rough openings
- Explain window frame and door adjustments for wall thickness.
- Describe proper procedures for installation and replacement
- Construction of garage door frames.
- Select proper doors, windows and hardware

5. Describe, prepare and install exterior finishes, including cornice and rake construction.

Potential Elements of the Performance:

- Describe cornice and rake construction.
- Describe and demonstrate exterior wood siding and shingles including beveled siding.
- Review and discuss exterior insulation systems.
- Examine various brick and stone veneer finishes.
- Review installation of various brick and stone veneer.
- Review installation of insulation board and stucco.

6. Understand the principles of conduction, convection and radiation in relation to heat transfer and heat loss.

Potential Elements of the Performance:

- Describe the function of air, vapour and weather barriers.
- Understand heat transfer and loss through building components
- Describe methods of controlling moisture.
- Select appropriate areas for insulation in a given structure
- Define technical terms relating to thermal and acoustical properties of construction materials
- Understand the formula for "r" ratings and energy efficient construction
- List general procedures for installing batt and blanket, fill and rigid insulation
- Understand STC (decibels) standards in desired areas and sound reduction techniques

7. Understand, describe and demonstrate stair design and construction.

Potential Elements of the Performance:

- Identify various types of stairs
- Define stair parts and terms
- Calculate rise-run ratios, number and size of risers, and stairwell length.
- Prepare sketches for types of stringers
- Layout stringers for a given stair rise and run.
- Identify and split angles for miter cuts
- Prepare staircase hand rails

III. TOPICS:

1. Protect yourself and others.
2. Wall, ceiling and roof assemblies and installation.
3. Roof decking, materials and installation.
4. Window and door installation.
5. Exterior finishes.
6. Principles of conduction, convection, moisture control and radiation.
7. Interior stair design and construction.

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Handouts, calculators, green tag safety boots, personal tool belt, safety glasses at all times in the class / on the work site
Text book ***Modern Carpentry,*** Essential Skills for the Building Trades, 11th Edition, 2008, Wagner and Smith, along with accompanying work book

V. EVALUATION PROCESS/GRADING SYSTEM:

Assignments and tests	30%
Practical activities	60%
Attendance	10%

The following semester grades will be assigned to students:

Grade	**Definition**	*Grade Point Equivalent*
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00

CR (Credit)	Credit for diploma requirements has been awarded.
S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:

Attendance:
Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.

SAULT COLLEGE

HMI 200 Residential Construction II – Course Plan

Week	Outcomes	Format	Hours	Topic/Content	Readings	Assignments	Assessment	Resources
1,2	1,2	Lecture	6	***Wall and ceiling framing*** <u>Identify</u> The main parts of wall frame Rough openings doors and windows <u>Explain</u> Methods of forming the outside corners and partitions	Chap. 9 pp. 253-280	Workbook Chap. 9, pp. 49-54	p. 281 Test ques. #1-15	Handouts, calculators, green tag safety boots, safety glasses. Text book ***Modern Carpentry,*** along with accompanying work book. Construction materials as arranged by instructor.
		Lab	9	Estimating materials required Describe construction and erection of wall sections and partitions Plate and stud layout <u>Apply</u> Trade related math Concepts of plate layout Construct and erect wall sections Double plate and wall sheeting Special framing and house wraps Ceiling framing and blocking			Practical activities	

3,4	1,2	Lecture Lab	6 9	***Roof framing*** <u>Explain</u> Various types of roofs Parts of a common rafter The terms slope and pitch Design and erection of trusses <u>Identify</u> Trade related math Roof supports Layout terms and principles and Rafter sizes and using a rafter table Framing plans <u>Perform</u> Use framing and speed squares <u>Apply</u> Layout a common rafter Erecting a gable roof and gable end frame Hip and valley rafters including jack rafters Applying math estimating	Chap. 10 pp. 283-325	Workbook Chap. 10, pp. 55-63	p. 326 Test ques. #1-20 Practical activities	As above and roof framing materials as provided, framing square, skill saw

5,6	1,2,3	Lecture Lab	4 6	***Roofing materials and methods*** <u>Identify</u> List various roofing materials commonly used Define roofing terms <u>Describe</u> Prepare a roof deck Procedures for both asphalt and wood shingles Application procedures for a built-up roof <u>Apply</u> Demonstrate correct nailing patterns Demonstrate the proper positioning of gutters Estimate materials required for a specific roofing job	Chap. 12 pp. 343-392	Workbook Chap. 12, pp. 67-74	pp. 393-394 ques. #1-25 Practical activities	As above and roofing materials (asphalt and wood shingles, nails)

7,8	1,2,4	Lecture Lab	4 6	***Windows and exterior doors*** <u>Describe</u> Window and door fabrication Window frame adjustments for wall thickness Procedures for installing a replacement window <u>Identify</u> Various types of windows Window schedule Procedures for installing standard windows Construction of garage door frames <u>Apply</u> Calculate required rough openings Prepare a rough opening for installation of a door frame Select appropriate garage door hardware	Chap. 13 pp. 395-432	Workbook Chap. 13, pp. 75-80	p. 433 Test ques. # 1-20 Practical activities	As above and window and door samples, installation materials

9,10	1,5	Lecture Lab	4 6	***Exterior wall finishes*** <u>Describe</u> Parts of a cornice and rake Cornice and rake construction How wood siding and shingles are applied Proper application of bevelled siding Exterior insulation and finish systems <u>Identify</u> Various brick and stone, masonry materials and tools Installation of insulation board and stucco <u>Apply</u> Estimate the amount of siding on a structure Installation techniques for various siding materials	Chap. 14 pp. 435-480	Workbook Chap. 14, pp. 81-87	pp. 481-482 Test, ques. #1-25 Practical activities	As above and samples of various exterior material

11,12	1,6	Lecture Lab	4 6	***Thermal and sound insulation*** <u>Describe</u> Principles of conduction, convection and radiation Types of insulation Methods of controlling moisture problems Construction that raise STC ratings in desired areas <u>Identify</u> Technical terms relating to thermal and acoustical properties Interpret thermal ratings charts Principle of condensation <u>Apply</u> Select appropriate areas for insulation in a given structure Procedures for installing batt and blanket, fill, rigid insulation Formula for R rating	Chap. 15 pp. 485-527	Workbook Chap. 15, pp. 89-97	p. 528 Test ques. # 1-20 Practical activities	As above and various types of insulation and vapour barriers

13,14	1, 7	Lecture Lab	4 6	***Interior stair construction*** <u>Discuss</u> Interior stair design <u>Review</u> Various types of stairs Stair parts and terms <u>Perform</u> Calculate the rise-run ratio, number and size of risers and stairwell length <u>Apply (continued from HMI 114)</u> Prepare sketches of types of stringers for interior stairs Layout stringers for a given stair rise and run Splitting angles for mitre cuts Using stock interior stair parts Identifying the angles on preformed hand railing stock Prepare staircase hand rails Layout of winder stairs	Chap. 18 pp. 597-615	Workbook Chap. 18, pp. 113, prepare for final test	p. 616 Test ques. # 1-10 Practical activities	As above and staircase materials and hand railings
15	1,2,3,4,5, 6,7	Lecture , lab	5	***Building project completion*** Complete term project work and all practical activities			Practical activities ***Final test***	
16	1,2,3,4,5, 6,7		5	Review; take up and discuss final test / assignments / practical activities / sharing and feedback				