

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**SAULT  
COLLEGE**

**COURSE OUTLINE**

**COURSE TITLE:** Residential Construction III

**CODE NO. :** HMI210 **SEMESTER:** 3

**PROGRAM:** Home Inspection Technician

**AUTHOR:** Al Tucci

**DATE:** September 2014 **PREVIOUS OUTLINE DATED:** January 2014

**APPROVED:** *“Corey Meunier”*  
**CHAIR** **DATE**

**TOTAL CREDITS:** 4

**PREREQUISITE(S):** Residential Construction I, II

**HOURS/WEEK:** 5

**Copyright ©2014 The Sault College of Applied Arts & Technology**  
*Reproduction of this document by any means, in whole or in part, without prior written permission of Sault College of Applied Arts & Technology is prohibited.*

***For additional information, please contact Corey Meunier, Chair  
Technology & Skilled Trades  
(705) 759-2554, Ext. 2610***

## I. COURSE DESCRIPTION:

This course is a continuation of Residential Construction II. The student will continue to build and expand knowledge and skills in the following relevant topic areas: interior finishes (trim, doors, and hardware), installation of door frames and casings, types of cabinetry, paint finishes, and chimneys and fireplaces. Students will also look at post and beam, passive solar and system built houses, deck construction and review renovation strategies.

## 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. ***Describe, prepare and install interior wall, ceiling and floor finishes, including safety rules that apply to painting and finishing.***

Potential Elements of the Performance:

- Describe and demonstrate wall board installation (cutting, nailing and adhesive) techniques.
- Types of wall finishes and installation techniques.
- Wall, ceiling and wood paneling materials and installation techniques.
- Plaster, gypsum and metal lathe installations.
- Lay out ceiling tile and furring strips.
- List painting tools and equipment and demonstrate their use.
- Prepare interior surfaces for painting.
- Primer, paint and finishing.
- Proper tool and application systems.
- Preparing exterior and interior surfaces for painting.
- Explore other wall coverings and finishes.
- Trade related math for estimating.
- Proper cleaning and storing of equipment.
- Describe, layout and install strip, plank and unit block wood flooring.

- Describe the procedure for applying hardboard, particle and wafer board, and plywood underlayment.

**3. *Understand door types and demonstrate interior door and trim installation methods.***

Potential Elements of the Performance:

- Compare door types, panel and flush type doors.
- Demonstrate the installation of frames and casings.
- List steps for hanging a door.
- Name lock parts, and describe lock installation procedures.
- Compare pocket and bypass-type sliding doors.
- Cut, fit and nail baseboard trim and mouldings.

**4. *Select and install cabinetry, millwork and hardware.***

Potential Elements of the Performance:

- Selecting prefab cabinetry to match a specific floor plan.
- Review onsite cabinetry millwork.
- Describe and install various drawer guides.
- Describe material choices for cabinet, shelves, doors and laminate surfaces.
- Review typical cabinet finishes (painting, finishing and decorating).

**5. *Understand and describe the parts and typical installation procedures for chimneys and fireplaces.***

Potential Elements of the Performance:

- Name the parts of a typical masonry fireplace
- Describe procedures for the construction of chimney, hearth, walls and throat.
- Describe the common types of factory built fireplaces.
- Complete calculations of flue area.

**6. *Describe and understand post-and-beam construction.***

Potential Elements of the Performance:

- List the advantages and disadvantages of post-and-beam construction.
- Describe general specifications and codes.
- Describe the selection of roof and floor planks.
- Compare transverse and longitudinal beams.
- Sketch basic construction details of stressed skin panels and box beams.

**7. Describe and understand basic types of systems-built housing.**Potential Elements of the Performance:

- Describe and understand the history and technology of system built housing.
- Identify a variety of factory built components and define terms.
- Differentiate between basic types of system-built structures.
- Explain moving methods and the erection sequence for a system built house.
- Review system built plans.

**8. Understand passive solar construction design**Potential elements of the Performance:

- Explain the difference between passive and active solar construction.
- Define conduction, convection, radiation and thermal siphoning.
- Complete calculation applications including glazing and direct-gain storage
- Describe considerations for lot locations, design and installation of solar systems.

**9. Describe a proper renovation / repair sequence and strategy.**Potential Elements of the Performance:

- Visually identify different types of residential construction.
- Identify bearing walls by visual and mechanical inspection.
- Demonstrate proper planning and scoping of renovations or repair.
- Make correct calculations for loads and spans.
- Follow proper installation techniques for support headers, saddle beams, and wood and asphalt shingles.
- Describe a solar retrofit on an older home.

**10. Prepare, layout and build a deck / porch.**Potential Elements of the Performance:

- Different types of decks and porches (including different structural and decking materials).
- Selecting and installing the appropriate fasteners for deck construction.
- Preparing the site, layout and construction of the deck.

**III. TOPICS:**

1. Interior wall and ceiling finishing.
2. Doors and interior trim.
3. Cabinetry.
4. Interior finishes (including flooring).
5. Post and beam construction and system built homes.
6. Fireplace construction and installations.
7. Passive and solar construction.
8. Remodeling, renovation and repair.
9. Porch / deck 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, 11<sup>th</sup> 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:

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







10	1,6	Lecture	1	<p><b><i>Post-and- beam construction</i></b></p> <p><u>Describe</u> Advantages and disadvantages of post-and-beam construction Specifications for supporting posts How roof and floor planks should be selected and installed</p> <p><u>Explain</u> Traverse and longitudinal beams</p> <p><u>Perform</u> Sketch basic construction details of stressed skin panels and box beams</p> <p><u>Identify</u> Nailing and bolting patterns</p>	Chap. 23, pp. 721-738	Workbook chap. 23, pp. 145-149	p. 738 Test, ques. # 1-10	As above and engineered and laminated materials
		Lab	3				Practical activities	
11	1,7	Lecture	1	<p><b><i>Systems-built housing</i></b></p> <p><u>Describe</u> Technology of systems-built housing</p> <p><u>Identify</u> Variety of factory built components that are utilized in a systems-built home Differentiate between the basic types and systems-built structures Terms used in the systems-built housing industry Method of moving systems-built housing</p> <p><u>Apply</u> Systems-built plans Explain erection sequence of a panelized home</p>	Chap. 24, pp. 741-755	Workbook chap. 24, pp. 151-153	p. 756 Test, ques. # 1-10	As above and various types of systems, hangers, bolts and nailing
		Lab	3				Practical activities	

12	1,8	Lecture	1	<p><b><i>Passive solar construction</i></b></p> <p><u>Describe</u> The difference between passive and active solar construction A solar retrofit on an older home</p> <p><u>Define</u> Conduction, convection, radiation and thermal siphoning</p>	Chap. 25 pp. 757-774 and chap.26 pp. 797-798	Workbook chap. 25, pp. 155-158	p. 775 Test, ques. # 1-10	As above and a selection of passive solar drawings
		Lab	3	<p><u>Apply</u> Calculate the amount of glazing and storage needed for a passive solar system Locate a dwelling for maximum solar gain Design and install various passive solar systems</p>			Practical activities	
13	1,9	Lecture	1	<p><b><i>Remodelling, renovating and repairing</i></b></p> <p><u>Identify</u> Different types of residential construction by visual inspection Bearing walls Accepted methods in replacing all types of doors</p> <p><u>Describe</u> Proper sequence of renovations or repair Repair and replace deteriorated components and systems How to remove parts of a structure without damaging the total structure Determine loads and calculate the correct header size for a span</p>	Chap. 26 pp. 777- 801	Workbook chap. 26, pp. 159-162	p. 801 Test, ques. # 1-15	As above and various demolition tools both hand and light power tools
		Lab	3	<p><u>Apply</u> Install and support headers, concealed headers and saddle beams Make repairs to wood and asphalt shingles</p>			Practical activities	

