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| **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:****PROFESSOR:** | Al TucciSam Spadafora |
| **DATE:** | January 2015 | **PREVIOUS OUTLINE DATED:** | January 2014 |
| **APPROVED:** |  |  |
|  | “Corey Meunier”CHAIR |  |
| **TOTAL CREDITS:** | 5 |
| **PREREQUISITE(S):** | Residential Construction I |
| **HOURS/WEEK:** | 5 |
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| *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. |

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| **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
 |
|  | ***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
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|  | ***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.
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|  | ***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
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|  | ***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
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| **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. |

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| **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 siteText book ***Modern Carpentry,*** Essential Skills for the Building Trades, 11th Edition, 2008, Wagner and Smith, along with accompanying work book |

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| **V.** | **EVALUATION PROCESS/GRADING SYSTEM:**Assignments and tests 30%Practical activities 60%Attendance 10% |
|  | The following semester grades will be assigned to students: |

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|  | 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 |
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|  | 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. |  |

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| **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. |

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| **VII.** | **COURSE OUTLINE ADDENDUM:** |
|  | The provisions contained in the addendum located on the portal form part of this course outline. |

** HMI 200 Residential Construction II – Course Plan**

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| Week | Outcomes | Format | Hours | Topic/Content | Readings | Assignments | Assessment | Resources |
| 1,2 | 1,2 | LectureLab | 69 | ***Wall and ceiling framing***Identify The main parts of wall frameRough openings doors and windowsExplain Methods of forming the outside corners and partitionsEstimating materials requiredDescribe construction and erection of wall sections and partitionsPlate and stud layoutApplyTrade related mathConcepts of plate layout Construct and erect wall sectionsDouble plate and wall sheetingSpecial framing and house wrapsCeiling framing and blocking | Chap. 9 pp. 253-280 | Workbook Chap. 9, pp. 49-54 | p. 281 Test ques. #1-15Practical activities | Handouts, calculators, green tag safety boots, safety glasses.Text book ***Modern Carpentry,*** along with accompanying work book.Construction materials as arranged by instructor. |
| 3,4 | 1,2 | LectureLab | 69 | ***Roof framing***Explain Various types of roofsParts of a common rafterThe terms slope and pitchDesign and erection of trussesIdentify Trade related mathRoof supportsLayout terms and principles and Rafter sizes and using a rafter tableFraming plansPerformUse framing and speed squaresApply Layout a common rafterErecting a gable roof and gable end frameHip and valley rafters including jack raftersApplying math estimating | Chap. 10 pp. 283-325 | Workbook Chap. 10, pp. 55-63 | p. 326 Test ques. #1-20Practical activities | As above and roof framing materials as provided, framing square, skill saw |
| 5,6 | 1,2,3 | LectureLab | 46 | ***Roofing materials and methods***Identify List various roofing materials commonly usedDefine roofing termsDescribePrepare a roof deckProcedures for both asphalt and wood shinglesApplication procedures for a built-up roofApply Demonstrate correct nailing patternsDemonstrate the proper positioning of guttersEstimate materials required for a specific roofing job | Chap. 12 pp. 343-392 | Workbook Chap. 12, pp. 67-74 | pp. 393-394 ques. #1-25Practical activities | As above and roofing materials (asphalt and wood shingles, nails) |
| 7,8 | 1,2,4 | LectureLab | 46 | ***Windows and exterior doors***DescribeWindow and door fabricationWindow frame adjustments for wall thicknessProcedures for installing a replacement windowIdentifyVarious types of windowsWindow scheduleProcedures for installing standard windowsConstruction of garage door framesApply Calculate required rough openingsPrepare a rough opening for installation of a door frameSelect appropriate garage door hardware | Chap. 13pp. 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 | LectureLab | 46 | ***Exterior wall finishes***Describe Parts of a cornice and rakeCornice and rake constructionHow wood siding and shingles are appliedProper application of bevelled sidingExterior insulation and finish systemsIdentify Various brick and stone, masonry materials and toolsInstallation of insulation board and stuccoApply Estimate the amount of siding on a structureInstallation techniques for various siding materials | Chap. 14pp. 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 | LectureLab | 46 | ***Thermal and sound insulation***Describe Principles of conduction, convection and radiationTypes of insulationMethods of controlling moisture problemsConstruction that raise STC ratings in desired areasIdentify Technical terms relating to thermal and acoustical propertiesInterpret thermal ratings charts Principle of condensationApply Select appropriate areas for insulation in a given structureProcedures for installing batt and blanket, fill, rigid insulationFormula 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 | LectureLab | 46 | ***Interior stair construction***DiscussInterior stair designReview Various types of stairsStair parts and termsPerform Calculate the rise-run ratio, number and size of risers and stairwell lengthApply (continued from HMI 114)Prepare sketches of types of stringers for interior stairsLayout stringers for a given stair rise and runSplitting angles for mitre cuts Using stock interior stair partsIdentifying the angles on preformed hand railing stockPrepare staircase hand railsLayout of winder stairs | Chap. 18pp. 597-615 | Workbook Chap. 18, pp. 113, prepare for final test | p. 616 Test ques. # 1-10Practical 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 |  |  |  |  |