 **HMI 114 - Residential Construction I (Course Plan)**

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| Week | **Outcomes** | Format | Hrs | Topic/Content | Readings | Assignment | Assessment | Resources |
| 1,2 | 1 | Lecture  Lab | 4  6 | ***The carpenter’s workplace; protect self and others***  Understand: the process of skill development and the importance competency  Explain  General hand tools, safety, scaffold safety, fall arrest training  Perform  Proper set up of scaffolds and ladder, proper use of tools including fall arrest equipment | Chap. 2  pp. 59-71 | Workbook chapter 2, p.11 | p. 72 Test, ques. # 1-11  Practical activities | Handouts, calculators, green tag safety boots, safety glasses.  Text book ***Modern Carpentry,*** along with accompanying work book.  Handouts / training materials for ladders, scaffolds, fall arrest, power tools, elevated platforms |
| 3 | 1, 2, 4 | Lecture  Lab | 2  3 | ***Preparing construction specific material and cost estimates***  ***Read and understand architectural drawings***  Explain  Preparing material lists for specified residential plans  Perform  Preparing materials for specific residential plans  Estimating materials, costs  Understanding the use of scale in plans  Identify  Identify architectural symbols | Chap. 3  pp. 73-99 | Workbook chapter 3, p.13 | p. 100 Test, ques. # 1-16  Practical activities | As above and residential prints, calculators |
| 4 | 1, 3 | Lecture  Lab | 2  3 | ***Building materials, with a focus on engineered lumber and its applications***  Explain  Various building materials, engineered lumber and its applications, wood ‘I’ beams, laminated veneer lumber, glue laminated beams, open web tresses.  Perform  Matching hangars with proper nailing patterns and proper nailing patterns for lamination  Identify  Difference between laminated beams and strand beams. | Chap. 1 | Workbook chapter 1, pp. 5 -10 Questions as assigned | p. 55 Test, selected questions  Practical activities | As above and building material samples, including engineered lumber, hangars and nails. |
| 5,6 | 1,2,5 | Lecture  Lab | 4  6 | ***Site preparations and building layout***  Explain  The operation of the builder’s level and level-transit  The basic operation of a laser level system  Perform  Measure and layout angles using levelling equipment  Read the vernier scale and use a plumb line  Apply  Use a builder’s level to make a square corner  Use a tape measure to square off a building  Use a transit and plumb bob for a starting point and locate building lines  Find grade levels and elevations  Proper use of laser levels and receiver | Chap. 6 pp. 149-166 | Workbook Chapter 6 pp. 29-32 | p. 167 Test, ques. #1-11 | As above and builder’s level, transit, plumb bob, 100’ tape, laser level and receiver. |
| 7,8,9 | 1, 5 | Lecture  Lab | 6  9 | ***Footings and foundations***  Explain  Layout lines of the building  Describe excavation procedures  Footing requirements and how to build footing forms  The terms concrete cement and aggregate  The building, erecting and use of forms  Types of foundation systems  Apply  Footing design  Forms for footings  concrete  Erecting wall forms  Placing concrete  Identify  Concrete blocks  Insulating foundation walls  ICF foundation wall systems  Pouring basement floors  Sidewalks and drives  Perform  Estimating materials | Chap. 7  pp. 169-219 | Workbook chapter 7 pp. 33-39 | pp.220- 221 Test, week 7  Ques. #1-20,  week 8  Ques. #21-35  Practical activities | As above and provided forming materials, ICF samples |
| 10,  11,12 | 1,2,6 | Lecture  Lab | 6  9 | ***Floor framing***  Describe  Type of floor framing  Platform framing  Girders and beams  Sill plates and headers  Floor joist and platform finishing  Overhangs and projections  Materials for sub-flooring  Identify  Material sizes including engineered materials, girder and beam size, posts and columns  Procedures for sill and header construction  Apply  Estimating material and material size  Perform  Floor framing and sheathing | Chap. 8 pp. 223-250 | Workbook Chap. 8 pp. 41-47 | Test ques. 1-10  Practical activities | As above and samples of engineered lumber, standard lumber and platform materials |
| 13,14 | 1,2,6 | Lecture  Lab | 4  6 | ***Entrance platforms and stair construction***  Describe  Construction of entrance platforms and stairs  Identify  Various types of stairs  Stair parts and terms  Perform  Calculate the rise-run ratio, number and size of risers and stairwell length  Apply  Prepare sketches of types of stringers  Layout stringers for a given stair rise and run  Splitting angles for mitre cuts  Using stock stair parts | Chap. 7 pp.211-212 and Chap.18, pp.597-615 | Prepare for final test | Practical activities | As above and staircase materials |
| 15 | 1,2,3,4,5,6 | 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, | Lecture / lab | 5 | Review; take up and discuss final test / assignments / practical activities / sharing and feedback |  |  |  |  |