Wooden-Works Pendulum Clock Design-Build Project
Grade 12 Technological Design

In the table below is an outline of how I was helping those grade 12 Tech Design students become better learners, better thinkers and better problem-solvers. There is generally an on-line Moodle quiz corresponding to each "input" document in the table. The Moodle quizzes typically deal with the fundamental knowledge – although some quizzes force the students to make connections and to think critically.

#	Input Document File Name	Brief Description / Key "Big Picture" Issue
1	Class_Business_Rules_to_sign.doc	Document Use: An agreement for maintaining a positive learning environment for all.
2	SafetyRules-to-Sign.doc	Document Use: The bottom line regarding wood shop safety
3	TechEducONTGr11-12-curric-2009.pdf	The Ontario Curriculum for Technological Education including "front matter" that applies to every Tech course in Ontario.
4	TDJ4M1-Feb11.pdf	Course profile – grade 12 Tech Design at SATEC
5	Top_20_questions_Mentor.doc	If you could ask your teacher or mentor only 20 questions about becoming a technology professional, what would those questions be? Re-visit this file periodically during the semester.
6	Design_Process_Stages_Details.doc	Design Process fundamentals
7	PedalPow_Plning_CCR_SAMPLE.doc	Sample design process planning document CCR Technique (Component / Collaboration / Responsibility)
8	Design_Team_Roles.doc	Management roles on the Design Team
9	Safety_Nature.doc	Critical thinking as to the nature of safety and the engineer's role in providing for public safety
10	Safety_Less1_.doc	General principles of wood shop safety
11	Safety_Less2_Process_Board.doc	Best practices in processing a board in the wood shop
12	13_Concepts....doc	Study one of the following files -- whichever is of most interest to you, and do whatever assignment it includes as well as the related Moodle quiz: --13_Concepts_Elect_Lighting.doc --13Concepts_SuspensionBridge.doc --13_Concepts_of_Technology_Pulley.doc --13_Concepts_Dryer.doc --13_Concepts_Clockshelf.doc
13	Trees_as_Technology.doc	Do you agree or disagree with the following statement: ***Trees are nature's perfect technology.***
14	Process_Control.doc	An Introduction to control systems
15	Pendulum_Clock_Energy_Control.doc	Mechanism, Control, Energy, Fabrication Evolution of an Innovation and meeting a need – clocks Sub-systems for the design of a pendulum clock
16	Mechanism_Innovation.doc	Discuss a pendulum clock from a "Black Box" point of view. What is going in? What is coming out? Now "open up" the pendulum clock "box" and discuss the pendulum clock as a "White Box".
17	nn_ Inventor...	Review of Inventor Pro (3D parametric CAD)
18	15_Inventor_2014_Middle_Out_	Several files to help students apply their knowledge of 3D

#	Input Document File Name	Brief Description / Key "Big Picture" Issue
	ClockCase.doc	Parametric CAD to the design of the case for a tall case clock
19	14_Inventor_2014_Gears....doc	A series of files to walk students through designing a clock gear train using Inventor Pro 3D CAD
20	Sample_Portfolio_Template.pdf	A template for technical reports
21	SampleDesPortf_PendulumClockV3.doc	A partial sample design portfolio for a Wooden Works "Tall Case" "8 Day" Pendulum Clock
22	Rubric_LearningSkills.doc	Development of your learning skills actually matters as much as – even more than – your mark.
23	Rubric_Information_Processing.doc	How to get a better mark in the "Thinking" achievement category
24	Written_Report_Rubric.doc	How to get a better mark in the "Communication" achievement category
25	Inventor_Marking_Criteria.doc	Marking scheme for using fundamentals of a 3D parametric CAD application
26	MarkingScheme_Probl_Solving_3DCAD.doc	Marking scheme for using a 3D parametric CAD application for problem-solving
27	Fabrication_Rubrics.doc	Marking scheme for shop work
28	Reflection_Rubric_ShopWork.doc	Reflecting on the development of these skills in the wood shop: planning, measurement, hand, following a procedure, tool and machine safety.
29	Outputs_System_Innovation_Control_Safety.doc	Consequences of Innovative Technology and the Safety-Related Role of Engineers and Other Professionals on the Design Team
30	Professional_Careers.pdf	
31	Product_Designer.doc	Professional Careers Self-Assessment -- Investigate how prepared you might presently be for work in the field of product design engineering for a sustainable society
32	ProfessionalRecordKeeping.pdf	The importance of design documentation
33	Lifelong_Learning.doc	Next to Thinking Skills, Lifelong Learning is the most important essential skill for engineers.
34	Design_Process_Review.doc	Do all Moodle quizzes again as part of your Exam review
35	Mock_Exam_AshSlabs_SampSoln.doc	A mock final exam with sample solution

I have thoroughly enjoyed teaching Technological Design to aspiring engineers and other aspiring professionals at SATEC. And I am more than satisfied that my teaching has made a very positive difference for many students.