



ORIGINAL COURSE IMPLEMENTATION DATE: September 2019
 REVISED COURSE IMPLEMENTATION DATE: September 2024
 COURSE TO BE REVIEWED (six years after UEC approval): February 2025
 Course outline form version: 28/10/2022

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: DMFG 203	Number of Credits: 3 Course credit policy (105)										
Course Full Title: Design for Manufacturing Course Short Title: Design for Manufacturing											
Faculty: Faculty of Applied and Technical Studies	Department (or program if no department): Digital Manufacturing										
Calendar Description: Introduction to manufacturing technology. Impacts of materials and processes on industrial design choices and approaches. Process of designing or engineering a product to reduce its manufacturing cost. Manufacturability and common-sense design. Manufacturing and industry standards, testing, and quality assurance.											
Prerequisites (or NONE):	ELTR 190.										
Corequisites (if applicable, or NONE):											
Pre/corequisites (if applicable, or NONE):											
Antirequisite Courses <i>(Cannot be taken for additional credit.)</i> Former course code/number: Cross-listed with: Equivalent course(s): <i>(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)</i>	Course Details Special Topics course: No <i>(If yes, the course will be offered under different letter designations representing different topics.)</i> Directed Study course: No <i>(See policy 207 for more information.)</i> Grading System: Letter grades Delivery Mode: Face-to-face only Expected frequency: Fall only Maximum enrolment (for information only): 20										
Typical Structure of Instructional Hours <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 80%;">Lecture/seminar</td> <td style="width: 20%; text-align: center;">30</td> </tr> <tr> <td>Supervised laboratory hours (science lab)</td> <td style="text-align: center;">15</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td style="text-align: right;">Total hours</td> <td style="text-align: center;">45</td> </tr> </table>	Lecture/seminar	30	Supervised laboratory hours (science lab)	15					Total hours	45	Prior Learning Assessment and Recognition (PLAR) PLAR is available for this course.
Lecture/seminar	30										
Supervised laboratory hours (science lab)	15										
Total hours	45										
Scheduled Laboratory Hours Labs to be scheduled independent of lecture hours: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Transfer Credit <i>(See bctransferguide.ca.)</i> Transfer credit already exists: No Submit outline for (re)articulation: No <i>(If yes, fill in transfer credit form.)</i>										
Department approval	Date of approval: October 27, 2023										
Faculty Council approval	Date of meeting: December 2023										
Undergraduate Education Committee (UEC) approval	Date of meeting: March 1, 2024										

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

Upon successful completion of this course, students will be able to:

1. Assess the optimization of industrial design applications.
2. Develop the skills of designing standardized parts.
3. Use modular design concepts.
4. Design for ease of fabrication and handling.
5. Evaluate how to minimize manufacturing cost.
6. Predict and fix (troubleshoot) potential problems in the design phase.
7. Apply environmental considerations in the industrial design.
8. Apply industry standards and quality assurance to design and manufacturing process.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Assignments:	50%	Lab work:	50%		%
	%		%		%

Details:

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures and Lab work with occasional guest lecture

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. [Open Educational Resources](#) (OER) should be included whenever possible. If more space is required, use the [Supplemental Texts and Resource Materials form](#).)*

Type	Author or description	Title and publication/access details	Year
1.	No textbook required – internal worksheets and lecture notes will be provided		
2.			
3.			
4.			
5.			

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)***Course Content and Topics**

Unit 1: Design for manufacturability
 Unit 2: Designing the product
 Unit 3: Designing for lean and build-to-order
 Unit 4: Standardization
 Unit 5: Minimizing total cost by design
 Unit 6: Guidelines for product design
 Unit 7: Guidelines for part design
 Unit 8: Design for quality
 Unit 9: Implementing design for manufacturability
 Unit 10: Product disassembly studies Unit 11: Shape casting of metals
 Unit 12: Sheet metal forming
 Unit 13: Extrusion of metals
 Unit 14: Forging of metals
 Unit 15: Machining
 Unit 16: Injection molding of thermoplastics
 Unit 17: Thermoforming
 Unit 18: Resin transfer molding
 Unit 19: Additive manufacturing
 Unit 20: Joining and assembly
 Unit 21: Recycling
 Unit 22: Manufacturing process choice