Appendix H

COQUITLAM COLLEGE
Established 1982

COURSE OUTLINE

Last Revised: **Last Reviewed:**   November 21, 2022

COURSE INFORMATION

Course Title: Vector Calculus   **Course Number:** MATH 202   **Credits:**   3

Total Weeks: 14 (Fall, Spring)   **Total Hours:**   39   **Course Level:**   ☐ First Year   ☒ Second Year
                    12 (Summer)   ☐ New   ☐ Revised Course
                                                                                                                                      ☐ Replacement Course

Department: Mathematics   **Department Head:** G.Belchev   **Former Course Code(s) and Number(s) (if applicable):** N/A

Pre-requisites (If there are no prerequisites, type NONE):   MATH 102 with MATH 232 recommended

Co-requisite Statement (List if applicable or type NONE):   NONE

Precluded Courses: N/A

COURSE DESCRIPTION

This course is continuation of MATH 201. Topics include vector functions of a single variable space curves, scalar and vector fields, conservative fields, surface and volume integrals and theorems of Gauss, Green and Stokes.

LEARNING OUTCOMES

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

- Have a good grasp of scalar and vector fields and their relation to certain physical phenomena
- Carry out calculations using vector operations and vector identities
- Integrate vector field, i.e. evaluate line and surface integrals
- Use the theorems of Gauss, Green, and Stokes to evaluate surface and line integrals

INSTRUCTION AND GRADING

Instructional (Contact) Hours:

Type	Duration
Lecture	39
Seminars/Tutorials	
Laboratory	
Field Experience	
Other (*specify):*	
Total	39

Grading System: Letter Grades ☒   Percentage ☐   Pass/Fail ☐   Satisfactory/Unsatisfactory ☐   Other ☐

Specify passing grade: 50%

Evaluation Activities and Weighting (total must equal 100%)

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Assignments: 10%	Lab Work: %	Participation: %	Project: %
Specify number of, variety, and nature of assignments:		*Specify nature of participation:*	*Specify nature of project:*
Quizzes/Test: 25%	Midterm Exam: 30%	Final Exam: 35%	Other: %

TEXT(S) AND RESOURCE MATERIALS

Provide a full reference for each text and/or resource material and include whether required/not required.

James Stewart, Multivariable Calculus: Concepts & Contexts

COURSE TOPICS

List topics and sequence covered.

Week	Topic	
Week 1	Review of Vectors & Vector Operations	9.1 – 9.5
Week 2	Review of Calculus with Vector Functions	10.1, 10.2
Week 3	Differential Geometry of Space Curves	10.3
Week 4	Velocity & Acceleration	10.4
Week 5	Vector Fields & Line Integrals	13.1, 13.2
Week 6	Fundamental Theorem of Calculus for Line Integrals	13.3
Week 7	Green's Theorem; Midterm exam	13.4
Week 8	Curl & Divergence	13.5
Week 9	Parametric Surfaces & Surface Integrals	10.5, 13.6
Week 10	Stokes's Theorem	13.7, 13.8
Week 11	Divergence Theorem	13.8
Week 12	Applications of Divergence Theorem; Differential Forms	13.8, Notes
Week 13	Fundamental Theorem of (Exterior) Calculus	Notes
Week 14	**Final Exam**	

NOTES

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COURSE OUTLINE

1. Students are required to follow all College policies. Policies are available on the website at: Coquitlam College Policies
2. To find out how this course transfers, vi sit the BC Transfer Guide at: bctransferguide.ca
3. Weekly course topics and textbooks may vary.