UNIVERSITY COLLEGE of the FRASER VALLEY

COURSE IMPLEMENTATION DATE:	September 1992
COURSE REVISED IMPLEMENTATION DATE:	September 2006
COURSE TO BE REVIEWED:	November 2009
(Four years after UPAC final approval date)	(MONTH YEAR)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT: **Faculty of Science, Health & Human Services/Physics**

COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS
PHYSICS 351		**3**

Quantum Mechanics

COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

This fundamental course on quantum mechanics is the gateway to modern physics. The Schrodinger equation and basic postulates of the theory will be examined. Topics will include one-dimensional problems, angular momentum, hydrogen atom, and spin.

PREREQUISITES: PHYS 252
COREQUISITES:
PRE OR CO-REQUISITE: PHYS 381

SYNONYMOUS COURSE(S)
(a) Replaces: **n/a** *(Course #)*
(b) Cannot take: **n/a** *(Course #)* for further credit.

SERVICE COURSE TO: *(Department/Program)* *(Department/Program)*

TOTAL HOURS PER TERM: **75**

STRUCTURE OF HOURS:

Lectures:	**75**	Hrs
Seminar:		Hrs
Laboratory:		Hrs
Field Experience:		Hrs
Student Directed Learning:		Hrs
Other (Specify):		Hrs

TRAINING DAY-BASED INSTRUCTION
LENGTH OF COURSE:
HOURS PER DAY:

MAXIMUM ENROLLMENT:	**24**	
EXPECTED FREQUENCY OF COURSE OFFERINGS:	**Once every two years**	
WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☐ Yes	☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☐ Yes	☒ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☐ Yes	☒ No

AUTHORIZATION SIGNATURES:

Course Designer(s): Tim Cooper; revised Derek Harnett

Chairperson: Gillian Mimmack *(Curriculum Committee)*

Department Head: Norm Taylor

Dean: Jackie Snodgrass

UPAC Approval in Principle Date:

UPAC Final Approval Date: December 14, 2005

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

To build up the students intuitive understanding of quantum mechanics and their knowledge of the formal structure of quantum mechanics.
To enable the students to solve various problems in each of the topic areas listed in the Calendar Description section.
Since quantum mechanics involves such a radical shift in the students' thinking, this course intentionally repeats some of the material in the prerequisite course, PHYS 252.

METHODS:

Lecture, demonstration, small group practice, discussion, audio-visual presentation, use of models and charts, seminars and presentations.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check:) ☒ Yes ☐ No

METHODS OF OBTAINING PLAR:

Departmental Review and/or Course Challenge

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

Texts:

Griffiths, D., Introduction to Quantum Mechanics

Optional texts:

Morrison, Michael A., Understanding Quantum Physics (Volume 1)

Liboff, R., Introductory Quantum Mechanics

Messiah, A., Quantum Mechanics (Vol. 1-2)

SUPPLIES / MATERIALS:

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Assignments	30%
Midterm	30%
Final	40%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

1. Schrodinger equation
2. One dimensional problems
3. Mathematical formalism
4. Three dimensional problems and angular momentum