

MINE 461 Applied Mineral Computer Methods
The Department of Mining Engineering
College of Engineering and Mineral Resources
West Virginia University

Syllabus 2014

Course:	MinE 461 Applied Mineral Computer Methods
Semester:	Fall Semester
Course Format and Credit Hours:	3 hrs lecture and lab
Prerequisites:	MATH 251 with a grade of “C” or better, and ENGR 102 or equivalent
Instructor:	Felicia Peng, 359F Mineral Resource Building, MRB Mining Engineering Department, CEMR, WVU fpeng@mix.wvu.edu, (304) 293-7680
Schedule:	Tuesday and Thursday, 12:30-1:45 pm
Class and Computer Lab Locations	Room 243 Mineral Resources Building (MRB).
Office Hours:	Open door policy, or by appointment
Course Objectives:	This course is to provide students with the skills and knowledge of computer programming or special topics using selected computer software tools— spreadsheet tools such as Excel for creative, data analysis, graphing and engineering problem solving, combining with word processing and presentation software tools for document preparation and presentation.
Expected Learning Outcomes:	Upon completion of this course, students will be able to: 1. have the knowledge of algorithm development for mining and other engineering problem solving. 2. Gain the skills and experiences in computer code such as VBA in spreadsheet for mining engineering and other engineering problem solving. 3. gain the ability of logical and analytical thinking, and ability of design for mining engineering and other engineering problem solving. 4. gain the skills and experiences in using various analysis tools for graphics and chart construction, statistics, engineering, economics, and optimum problem solving. 5. gain life long learning ability by using the fundamental knowledge of process of using software tools, to further advance to other software or software tools for mining engineering and other engineering problem solving. 6. increase the proficiency in oral and written communications, and presentation (if design projects are assigned. 7. gained the experience in working within a team (if design projects are assigned).
Topics:	Special Topics in Computer Applications--Spreadsheet using Excel and VBA: 1) Excel fundamentals; use of formulate and functions; creating and running macro. 2. Analyzing data using statistical functions and tools; fitting equations to data using regression analysis tool; creating graphs. 3. Sorting, retrieving and filtering data; creating pivot tables and charts. 4. Solving single equations using graphics, Goal Seek tools, Solver tools techniques; matrix and solver

	<p>methods for solving simultaneous equations. 5. Making logical decisions; use of financial analysis functions. what-if and scenarios. 6. Finding optimum solution. Numerical integrals. Development of macro by applications of VBA, and/or add-in..</p> <p>2) LIMN-Process Flowsheet software will be covered for mass balances and flowsheet development, if the software tool can be installed on time.</p>										
Required Textbooks:	A Guide to Microsoft Excel 2007 for Scientists and Engineers (Paperback), by Bernard Liengme, 2009, John Wiley and Sons (Academic Press-Elsevier, San Diego, CA)										
Supplemental books	<p>Supplemental materials for the class such as Visual Basic Applications (VBA), including Macros or subroutines for numerical analysis of integrations and differentiations, engineering problems, etc., are adopted from the following book for class exercises and home works.</p> <p>Chapra, S. C., 2002, "Power Programming with VBA/Excel", by Prentice Hall, New York, N.Y., 191 pp.</p> <p>LIMN-Process Flowsheet training materials</p>										
Grading:	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Attendance and Textbook</td> <td>15%</td> </tr> <tr> <td>Homework and class work (mandatory)</td> <td>20%</td> </tr> <tr> <td>Exam1, Exam 2, Exam 3 (12.5%, 12.5%, and 20%)</td> <td>45%</td> </tr> <tr> <td>Applied design project report and presentations (LIMN-Process Flowsheet will be covered if the time allows)</td> <td>20%</td> </tr> <tr> <td style="text-align: center;">Total</td> <td>100%</td> </tr> </table> <p>Notes:</p> <p>1) Attendance is absolute necessary.</p> <p>2) Homework and assignment are mandatory and are due one week after the problem is assigned, unless announcement is made in class. 20% will be take off per day late. If the due date is a holiday, due date will be the next day of the holiday.</p> <p>3) For design project, each student must select a topic from the field of your major, write a 1-2 page proposal, and obtain an approval from the instructor. Prepare a report and make ppt slides for presentation. MINE 461 students must attend the presentation. 25% will be taken off from your grade of the design project, if you absent from any presentation sessions.</p>	Attendance and Textbook	15%	Homework and class work (mandatory)	20%	Exam1, Exam 2, Exam 3 (12.5%, 12.5%, and 20%)	45%	Applied design project report and presentations (LIMN-Process Flowsheet will be covered if the time allows)	20%	Total	100%
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Attendance and Grading Policy:	For excusable absence, the weight of missing Midterm exam will be added to that of Next Exam. The letter grade will be curved depending upon the overall performance of the class.										

<p>Social Justice Statement:</p>	<p>“The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion.</p> <p>If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Accessibility Services (293-6700). For more information on West Virginia University's Diversity, Equity, and Inclusion initiatives, please see http://diversity.wvu.edu.”</p>
<p>Days of Special Concern:</p>	<p>Faculty members are required to make reasonable accommodation for Days of Special Concern, which are listed in the Schedule of Courses. They may choose to excuse absences resulting from these observances. Alternatively, they may choose to cover all reasons for student absences with a blanket absence policy. For example, they may allow students a specified number of unpenalized absences or permit students to drop the lowest quiz grade. If this blanket absence policy is meant to extend to Days of Special Concern, the instructor must state this clearly on the syllabus at the beginning of the term. The Student Instruction Committee of the Faculty Senate with the support of the Office of the Provost recommends that faculty, on a voluntary basis, consider including a social justice statement in each course syllabus.</p> <p>Students who will miss an examination or a field trip due to a Day of Special Concern absence should notify their instructors at the beginning of the term. Faculty are instructed to make reasonable accommodation for students who miss scheduled exams or field trips as a result of such observance.</p>
<p>Ethics</p>	<p>Integrity, trustworthiness and responsibility are central to the development of mature individuals. Students are expected to adhere to and practice the Code of Conduct of WVU, and maintain the highest standards of academic and professional integrity. Work that is not of the student's own creation will receive no credit. Student's ignorance is no legitimate defense for academic dishonesty. Academic dishonesty includes lying, cheating, stealing, and using unauthorized materials on any assignment, quiz or exam. Students shall refrain from using language or acting in a manner that is disrespectful/inappropriate towards other students and members of the WVU community. Sexual assault and harassment is inexcusable and shall result in disciplinary action in accordance with WVU policy. Students may not interrupt their classmates or professor, make fun of them, or disrupt the learning environment.</p>
<p>FE Exam and PE Registration:</p>	<p>As part of the academic and professional development of young mining and Mineral Engineers, the Department of Mining Engineering encourages students to take the Fundamentals of Engineering (FE) exam and to then follow this by becoming registered as a Professional Engineer (PE).</p>

