



Republic of the Philippines
Western Mindanao State University
Institute of Computer Studies
DEPARTMENT OF COMPUTER SCIENCE

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| Semester Adopted: | Sem: 1st S.Y.: 2021-2022 |
| Revision Status: | 1st Draft |
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| Recommending approval: | Engr. Odon A. Maravillas Jr. |
| Concurred: | Dr. Roderick P. Go |
| Approved: | Dr. Nursia M. Barjose |

OUTCOMES-BASED EDUCATION (OBE) RESTRUCTURED COURSE SYLLABUS IN SOFTWARE ENGINEERING 1

1st Semester, SY 2021-2022

Western Mindanao State University

VISION

The University of Choice for higher learning with strong research orientation that produces professionals who are socially responsive to and responsible for human development; ecological sustainability; and, peace and security within and beyond the region.

MISSION

The Western Mindanao State University, set in a culturally diverse environment, shall pursue a vibrant socio-economic agenda that includes:

- A relevant instruction paradigm in the education and training of competent and responsive human resource for societal and industry needs;
- A home for intellectual formation that generates knowledge for people empowerment, social transformation, and sustainable development; and;
- A hub where science, technology, and innovation flourish enriched by the wisdom of the Arts and Letters, and Philosophy.

Institute of Computer Studies

GOALS

The institute shall provide academic excellence in the field of Information and Communication Technology, with emphasis on the following goals:

- a. Produce quality, excellent and eco-friendly graduates imbued with gender responsiveness.
- b. Achievement of the highest level of accreditation and center of excellence imbued with outcomes-based education.
- c. Partner with national and international industries as an outlet for research development and extension.
- d. Support faculty members through faculty development programs to be competitive with the highest global standards.

| Bachelor of Science in Computer Science Program Outcomes | GOALS | | | |
|---|-------|---|---|---|
| | A | B | C | D |
| A. Utilize effectively the concepts of computer science theories and methodologies and adopt new technologies and ideas in formulating effective solutions to address public health and safety, cultural, societal, gender, and environmental considerations. (Competent Computer Science Professional, Socially Responsive) | ✓ | ✓ | ✓ | |
| B. Work cohesively with members of a team using their skills to successfully completion of a project. (Team Player) | ✓ | ✓ | ✓ | |
| C. Pursue personal development and lifelong learning through research, graduate studies, training, and membership to a professional organization to be globally competitive. (Lifelong Learner) | ✓ | ✓ | ✓ | |
| D. Communicate effectively with the computing community and society through oral and written correspondence. (Effective Communicator) | ✓ | ✓ | ✓ | |

COURSE CODE CS 137

COURSE NAME Software Engineering 1

PREREQUISITE CS 121 – Object Oriented Programming, CC 104 – Information Management

COURSE CREDIT 3 Units (2 Units Lecture and 1 Unit Laboratory/2hrs. Lecture + 3hrs. Laboratory = 5hrs/week)

COURSE DESCRIPTION Software engineering is an engineering discipline in which the aim is the production of software products, delivered on time and within a set budget, that satisfies the client's needs. It covers all aspects of software development ranging from the early stage of product concept to design and implementation to post-delivery maintenance. This course introduces the 3 major stages of software development, planning, analysis, and design. At the end of this course, the students should be able to present the system prototype and its documentation.

| Course Learning Outcomes | Program Outcomes | | | |
|--|------------------|---|---|---|
| | A | B | C | D |
| A. Compare and contrast different Software Development Life Cycle Models. | ✓ | ✓ | ✓ | ✓ |
| B. Apply strategic approach in project management, people management, cost management, and risk management. | ✓ | ✓ | ✓ | ✓ |
| C. Discuss the principal requirements engineering activities of elicitation, analysis, and validation including their relationships. | ✓ | ✓ | ✓ | ✓ |
| D. Extract user requirements, translate and present these to formal models using UML-based diagrams. | ✓ | ✓ | ✓ | ✓ |
| E. Design an overall architecture of the system and justify its appropriateness. | ✓ | ✓ | ✓ | ✓ |
| F. Design system's prototype based on user and system requirements. | ✓ | ✓ | ✓ | ✓ |
| G. Translate program designs and specifications into actual program codes. | ✓ | ✓ | ✓ | ✓ |

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| References | SOFTWARE ENGINEERING (Ninth Edition) by Ian Sommerville FUNDAMENTALS OF PROJECT MANAGEMENT (4th Edition) by Joseph Heagney PROJECT COST MANAGEMENT by Free Management E-Books A PRACTICAL GUIDE TO WRITING A FEASIBILITY STUDY (1st Edition) by Ndalakwa Masanja, 2020 |
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Grading System

| | |
|------------------------|--|
| Midterm Grade (30%) | |
| Lecture Garde (30%) | Attendance (10%) Assignments (20%) Quizzes (30%) Major Exam (40%) |
| Laboratory Grade (70%) | Lab Activities (10%) Project Documentation (20%) Presentation (70%) |
| Final term Grade (70%) | |
| Lecture Garde (30%) | Attendance (10%) Assignments (20%) Quizzes (30%) Major Exam (40%) |
| Laboratory Grade (70%) | Lab Activities (10%) Project Documentation (20%) Presentation (70%) |

| % EQUIVALENT | NUMERICAL RATING |
|---|------------------|
| 96-100 | 1.0 |
| 91-95 | 1.25 |
| 86-90 | 1.5 |
| 81-85 | 1.75 |
| 76-80 | 2.0 |
| 71-75 | 2.25 |
| 66-70 | 2.5 |
| 62-65 | 2.75 |
| 60-61 | 3.0 |
| Below 60/Failed the Panel Defense | 5.0 |
| Lacks requirements/no final exam/no presentation | INC |
| Authorized Withdrawal (Dropped with permit) | AW |
| Unauthorized Withdrawal (Dropped from class for non-attendance/non-appearance for 20% of prescribed attendance) | UW |

| | | | |
|--------------|------------------|------|---------------------|
| Final Rating | Midterm Grade | 30% | Sample Computation: |
| | Final term Grade | 70% | Score/Total x 100 |
| | | 100% | 40/50 x 100 = 80.0 |
| | PASSING GRADE | 60% | |

Course Requirements

- Assignments
- Quizzes
- Major Exam
- Lab Activities
- Consultation
- Project Documentation
- Acceptable Software Prototype
- Midterm and Final Oral Presentation

| Classroom Policy |
|--|
| <p>Attendance: Per article 286 of the WMSU code, regular attendance is required of all students. Attendance is counted upon the first day of regular classes, regardless of the time of the student’s enrolment. Students who came into class within 15 minutes after the start time will still be considered present; otherwise, the student will be marked as late. Seven consecutive absences may be a ground for students to be dropped in the subject. Students who cannot attend either face-to-face or online class due to illness must contact the instructor immediately regarding the absence and discuss any activities missed in the class.</p> <p>Wearing of Prescribed School Uniform and ID: Per article 391 of the WMSU code, every student must wear the prescribed college uniform unless, for certain valid reasons, s/he has written exemption from the Dean of Student Affairs which s/he must show on demand. Students are exempted from wearing their school uniforms during Wednesdays and Saturdays since these days are considered a wash day. Students are also required to wear their school ID when inside the campus, at all times. For online classes via video conferences, students are not required to wear their school uniform and advise to wear any appropriate attire.</p> <p>Cleanliness and Room Organization: For lecture and laboratory, students are advised to arrange the chairs and tables (if any), and pick up pieces of trash before the start of the class. A student is also assigned at random to keep the white or blackboard clean before and after the class. Lighting, air conditioners, and other electrical equipment should also be turned on and off during and after the class respectively. An additional rule for the laboratory is that students are required to wear their shoe protectors when coming into the laboratory room. During online classes, students are expected to attend their classes in a quiet place.</p> <p>Seat Plan: For the seating plan during lecture classes, students are given the freedom to choose the seat and place they are comfortable with inside the room. For the laboratory, if the instructor deems it necessary, students are rearranged randomly. There should be one computer for each student.</p> |

Cellphone/Mobile Devices: Cellular phones or any mobile device should be set to silent or vibrate mode to avoid disruption especially during face-to-face class discussion. Important calls and texts must be answered outside the classroom. Students are permitted to use their mobile phones when attending their online classes. The use of laptops/computers is recommended for a better learning experience.

Student Facilitators: Student facilitators are selected from the class by the teacher. These students will assist their classmates in accomplishing the laboratory activity given by the teacher. This is done only upon the instruction of the teacher and also applicable during online classes but not to the extent of sharing/copying answers.

Quizzes: Quizzes are given to students at least once after a chapter or two which should be announced. Students are advised to use the CET Exam Booklet during quizzes. For online quizzes/exams, students will take the quiz/exam through the Learning Management System platform, questions and options are shuffled, navigation is disabled if necessary. Quiz/exam is always time-pressured.

Major Examinations: Major exams such as midterm and final exams are given to students based on the schedule specified in the university calendar. They are also advised to use the CET examination booklet for the major exams. Students who fail to take the major exams due to illness (with a medical certificate) should inform the instructor early so they will be given a special exam before the submission of grades. Otherwise, an “INC with No Final/Midterm exam” will be submitted by the instructor. A calculator may be used depending on the content of the exam. However, mobile devices are strictly prohibited during major exams. Failure to do so will be considered a form of cheating. Major exams can be also administered online in the same manner how the online quizzes are conducted.

Laboratory Activities: Laboratory hands-on activities are given to students at every meeting. The laboratory output is graded based on a rubric scorecard. A major laboratory hands-on activity is given to students during the midterm and final exam week.

Consultation: Aside from the regular system of consultation offered by the adviser and/or guidance counselor, the faculty shall provide the student with consultation hours for students to inquire regarding their subject/course, ask for clarification or further explanation of certain topics discussed, or to be discussed in the subject, and other concerns related to the subject. The student should set an appointment at least a day before the consultation to avoid conflicts of schedule. Consultation can be done online through any messaging platform.

Student Integrity/Academic Honesty

Cheating

Receiving or providing unapproved help in any academic task, test, or treatise. Cheating includes the attempt to use or the actual use of any unauthorized information, educational material, or learning aid in a test or assignment. Cheating includes multiple submissions of any academic exercise more than once for credit without prior authorization and approval of the instructor.

Plagiarism

Presenting someone else's work as though it is your own. In an academic community, the use of words, ideas, or discoveries of another person without explicit, formal acknowledgment constitutes an act of theft or plagiarism. In order to avoid the charge of plagiarism, students must engage in standard academic practices such as paraphrasing or replacing words that are not their own and employing the appropriate documentation or citation, and including a formal acknowledgment of the source in the proper format.

Fabrication, Obstruction, and Collusion

Fabrication – Inventing or falsifying any data, information, or records.

Obstruction – Impeding the ability of another student to perform assigned work.

Collusion – Assisting any of the above situations or performing work that another student presents as his or her own.

Penalties

Penalties for an academic offense include one or more of the following:

- Resubmission of the work in question
- Submission of additional work for the course in which the offense occurred
- A lower grade or loss of credit for the work found to be in violation
- A failing grade of 5.0 for the course in which the offense occurred

Submission/Presentation of Projects/Requirements: Submission or presentation of projects or requirements must be on time. No project or requirement will be accepted after the due date unless with a valid reason.

Additional Online Course Policy

Learning Modality: Blended Learning Approach will be used since face-to-face classes are still not possible. A mixture of synchronous virtual classes and asynchronous online class discussions are to be expected to support remote learning. 70% of the classes and/or meetings will be purely online including project presentations. Students who will be employing face-to-face group internal activities such as group meetings, collaboration, and alike should inform their instructor ahead of time. IATF protocols should be observed at all times when doing face-to-face activities.

The Learning Management System (LMS) Platform

- MS Teams - is used for online meetings, virtual classes, online presentations, and alike. Google Meet can still be used for the same purpose.
- Messenger - is used for informal class conversations such as instructions, announcements, etc.
- LMS (Digital Education) - the www.lms.wmsuics.tech is used for e-learning activities. However, Quizzes can only be taken in the LMS during the class schedule. Assignments, activities, and all other requirements required by the instructor should be submitted using the LMS Digital Education platform.
- Important notes: in the effort of aiding remote learning in our institution, the LMS Digital Education Platform used in this course is for testing purposes only. Instructors of your other subjects are still using the officially endorsed LMS (Google Classroom, MS Teams).

Video Recording: Students are not allowed to record their online classes unless otherwise permitted by the instructor.

Due Dates and Late Work: Students are given at least 1 week to complete their given activity except for proctored quiz/exam. For late work, submission is subject to point deduction depending on the number of days late. Resubmission's highest grade is 80.

Inquiry and Grading Feedback Turn-Around Time: For inquiries, students shall expect responses from their instructor within 24-48 hours. Expect at least 2 weeks after submission for the grading and releasing of results.

Technical Issues and Temporary Fallback: Students shall inform their instructor if they failed to join online classes due to technical issues, internet connectivity problems, invalid accounts, electricity interruption, etc. In any case, the LMS is not available, other alternative platforms shall be used to continue e-learning.

Student Responsibilities: Students are expected to demonstrate the technical and academic skills to be a successful online student; one who can operate the computer and internet functions necessary to complete an online class and someone who has the self-discipline and time management skills to work independently. Though e-learning materials can be accessed using their mobile phones, students shall have ready access to a computer and the internet and a backup plan if hardware or internet access fails. Students should use software that complies with the minimum requirements of software necessary to access and run the course, obtain required textbooks, and if needed, related course materials or supplies. Students are expected to log in and contribute to the online class regularly in a meaningful way. They should also know and comply with the due date and deadline requirements of the course and communicate with the instructor and fellow students in a professional, polite manner, using appropriate tone, language, grammar, and spelling. They should also easily locate and use academic support resources such as tutoring, writing consultation, and library services, demonstrate commitment to academic honesty by completing assignments and other coursework with integrity, monitor and ask questions about their course grade, save backup copies of lectures, assignments, and class emails and comply with online participation requirements to avoid being dropped for non-participation.

Course Rubrics

| Assignments/Lab Activities | | | | |
|-----------------------------------|--|--|--|--|
| Criteria | Beginner 1-2/5 | Capable 3/5 | Accomplished 4/5 | Expert 5/5 |
| Organization (20%) | The information appears to be disorganized. 8pts | Information is organized, but paragraphs are not well-constructed. 12pts | Information is organized with well-constructed paragraphs. 16pts | Information is very organized with well-constructed paragraphs and subheadings. 20pts |
| Amount of Information (30%) | One or more topics were not addressed. 12pts | All topics are addressed, and most questions are answered with 1 sentence about each. 18pts | All topics are addressed and most questions answered with at least 2 sentences about each. 24pts | All topics are addressed and all questions answered with at least 2 sentences about each. 30pts |
| Quality of Information (30%) | Information has little or nothing to do with the main topic. 12pts | Information relates to the main topic. No details and/or examples are given. 18pts | Information relates to the main topic. It provides 1-2 supporting details and/or examples. 24pts | Information relates to the main topic. It includes several supporting details and/or examples. 30pts |
| Mechanics (10%) | Many grammatical, spelling, or punctuation errors. 4pts | A few grammatical spelling, or punctuation errors. 6pts | Almost no grammatical, spelling, or punctuation errors. 8pts | No grammatical, spelling, or punctuation errors. 10pts |
| Construction (10%) | The paragraphing structure was not clear and sentences were not typically related within the paragraphs. 4pts | Paragraphs included related information but were typically not constructed well. 6pts | Most paragraphs include introductory sentences, explanations or details, and concluding sentences. 8pts | All paragraphs include introductory sentences, explanations or details, and concluding sentences. 10pts |

| Assignments/Lab Activities with Diagrams and Illustrations | | | | |
|---|--|--|---|---|
| Criteria | Beginner 1-2/5 | Capable 3/5 | Accomplished 4/5 | Expert 5/5 |
| Accuracy (30%) | Insufficient user requirements and technical specification: meeting the stated | User requirements and technical specification cover only some aspects of the | Accurate user requirements and technical specification that | Accurate, comprehensive, and sufficiently specific user |

| Assignments/Lab Activities with Diagrams and Illustrations | | | | |
|---|--|---|--|--|
| Criteria | Beginner 1-2/5 | Capable 3/5 | Accomplished 4/5 | Expert 5/5 |
| | requirements and specifications does not solve the stated problem. 12pts | system, and miss some significant aspects, or characterize them inaccurately. 18pts | cover most aspects of the system. 24pts | requirements and technical specification. 30pts |
| Organization (15%) | Very hard to find information. 6pts | Information difficult to locate. 9pts | Can find information with slight effort. 12pts | All information is easy to find and important points stand out. 15pts |
| Completeness (25%) | Non-representative, or missing system components. 10pts | Only some system components are identified. Some major components are missing. 15pts | Most major system components are identified. 20pts | All major system components are identified. 25pts |
| Diagrams and Illustrations (30%) | Diagrams and illustrations are not accurate OR do not add to the reader's understanding of the topic. 12pts | Diagrams and illustrations are neat and accurate and sometimes add to the reader's understanding of the topic. 18pts | Diagrams and illustrations are accurate and add to the reader's understanding of the topic. 24pts | Diagrams and illustrations are neat, accurate and add to the reader's understanding of the topic. 30pts |

| Project Documentation | | | | |
|------------------------------|---|--|---|--|
| Criteria | Beginner 1-2/5 | Capable 3/5 | Accomplished 4/5 | Expert 5/5 |
| Organization (20%) | The information appears to be disorganized. 8pts | Information is organized, but paragraphs are not well-constructed. 12pts | Information is organized with well-constructed paragraphs. 16pts | Information is very organized with well-constructed paragraphs and subheadings. 20pts |
| Amount of Information (30%) | One or more topics were not addressed. 12pts | All topics are addressed, and most questions are answered with 1 sentence about each. 18pts | All topics are addressed and most questions answered with at least 2 sentences about each. 24pts | All topics are addressed and all questions answered with at least 2 sentences about each. 30pts |

| Project Documentation | | | | |
|------------------------------|--|---|--|---|
| Criteria | Beginner 1-2/5 | Capable 3/5 | Accomplished 4/5 | Expert 5/5 |
| Quality of Information (20%) | Information has little or nothing to do with the main topic. 8pts | Information relates to the main topic. No details and/or examples are given. 12pts | Information relates to the main topic. It provides 1-2 supporting details and/or examples. 16pts | Information relates to the main topic. It includes several supporting details and/or examples. 20pts |
| Mechanics (10%) | Many grammatical, spelling, or punctuation errors. 4pts | A few grammatical spelling, or punctuation errors. 6pts | Almost no grammatical, spelling, or punctuation errors. 8pts | No grammatical, spelling, or punctuation errors. 10pts |
| Construction (10%) | The paragraphing structure was not clear and sentences were not typically related within the paragraphs. 4pts | Paragraphs included related information but were typically not constructed well. 6pts | Most paragraphs include introductory sentences, explanations or details, and concluding sentences. 8pts | All paragraphs include introductory sentences, explanations or details, and concluding sentences. 10pts |
| Format (10%) | Fails to follow format and documentation requirements; incorrect margins, spacing, and indentation. 4pts | Meets format and some documentation requirements; generally correct margins, spacing, and indentations. 6pts | Meets format and most of the documentation requirements; margins, spacing, and indentations are correct. 8pts | Meets all formal and documentation requirements; all margins, spacing, and indentations are correct. 10pts |

| SOFTWARE ENGINEERING 1 MIDTERM DEFENSE (INSTRUCTOR ONLY) | | | | |
|---|--|---|--|---|
| Criteria | Beginner 1-2/5 | Capable 3/5 | Accomplished 4/5 | Expert 5/5 |
| Organization (20%) | Presentation cannot be understood due to lack of logical sequence in the presentation. 8pts | Presentation is difficult to follow and presenter jumps around. 12pts | Presents information in a logical sequence, and easy to follow. 16pts | Presents information in a logical, interesting sequence, and easy to follow. 20pts |
| Content (20%) | One or more topics were not addressed. 8pts | Topics are addressed with some details, diagrams, figures or tables. 12pts | Topics are addressed with enough details, diagrams, figures and tables. | All topics are addressed with complete details, diagrams, figures and tables. |

| SOFTWARE ENGINEERING 1 MIDTERM DEFENSE (INSTRUCTOR ONLY) | | | | |
|---|---|---|--|--|
| Criteria | Beginner 1-2/5 | Capable 3/5 | Accomplished 4/5 | Expert 5/5 |
| | | | 16pts | 20pts |
| Delivery (20%) | Presenter is clearly unprepared. Poor voice volume, tone, pacing, and lack of appropriate gestures to support the presentation. 8pts | Presenter is somewhat prepared. Delivery of the presentation is made with hesitation. Good voice volume, tone, pacing, and some appropriate gestures support the presentation. 12pts | Presenter is well prepared and delivers correctly. Appropriate voice volume, tone, pacing, gestures support the overall presentation. 16pts | The presenter is VERY WELL prepared and delivers ideas in a clear and concise manner. Voice volume, tone, pacing and gestures contribute maximally to the presentation. 20pts |
| Expertise (20%) | The presenter does not have grasp with the information, and fails to answer the questions. 8pts | The presenter is uncomfortable with the information and is able to answer only rudimentary questions. 12pts | The presenter is at ease with expected answers to all questions but fails to elaborate. 16pts | The presenter demonstrates full knowledge by answering all questions with explanations and elaboration. 20pts |
| Graphics (10%) | Several graphics are not appealing and irrelevant in the presentation. 4pts | Few graphics are not appealing and only few support the presentation. 6pts | Few graphics are not appealing but all support the presentation. 8pts | All graphics are attractive and support the presentation. 10pts |
| Length of Presentation (10%) | Topic is presented 50% or more short or over in the given allotted time. 4pts | Topic is presented 30% short or over in the given allotted time. 6pts | Topic is presented 10% short or over in the given allotted time. 8pts | Topic is presented in the given allotted time. 10pts |

| SOFTWARE ENGINEERING 1 FINAL DEFENSE (PANEL DEFENSE) | | | | | |
|---|---|--|--|--|--|
| Criteria | 1 | 2 | 3 | 4 | 5 |
| Presentation (10%) | Presentation is not comprehensible, does not reflect logical order, unorganized, unstructured and does not hold audience attention. 2pts | Audience has difficulty following the presentation. 4pts | Presentation is organized, reflects logical order and the audience is able to follow. 6pts | Audience is able to follow the presentation which is delivered clearly and smoothly. 8pts | Presentation is wellorganized, eloquently delivered with confidence, reflects logical order and holds audience attention from start to end. 10pts |
| Knowledge (10%) | The student does not have grasp with the information, and failed to answer most of the questions. 2pts | The student was uncomfortable with the information and only answered rudimentary questions. 4pts | The student briefly answered most of the questions. 6pts | The student is at ease with expected answers to all questions but fails to elaborate. 8pts | The student demonstrated full knowledge by answering all questions with explanations and elaboration. 10pts |
| Content (10%) | Failed to provide a clear purpose, ideas and evidence that support the project concept. 2pts | Attempted to define purpose and ideas but lack evidence that support the project concept. 4pts | Provided a clear purpose, ideas and most evidence that support the project concept but lack of innovation. 6pts | Provided a clear purpose, ideas and evidence that support the project concept. 8pts | Provided a clear purpose, ideas and evidence which are innovatively used and explained that support the project concept. 10pts |
| Scope (20%) | Barely fulfilled the project requirements and proposed software features are not well presented. 4pts | Fulfilled some of the project scope but with significant portions missing and some of the proposed software features are not well presented. 8pts | Fulfilled most of the project scope and most of the proposed software features are well presented. 12pts | Fulfilled all of the project scope and proposed software features are well presented. 16pts | Exceeded the project scope and proposed software features are completely captured and well presented. 20pts |

| SOFTWARE ENGINEERING 1 FINAL DEFENSE (PANEL DEFENSE) | | | | | |
|--|--|---|--|--|---|
| Criteria | 1 | 2 | 3 | 4 | 5 |
| Technicality (20%) | Uncertain with the software, hardware, network, and database requirements. 4pts | Students had a plan and knew about the software, hardware, network, and database requirements but lacked research on how to utilize it. 8pts | Software, hardware, network, and database requirements are defined and specified. 12pts | Software, hardware, network, and database requirements are well-defined and considered the limitation/constraints for each requirement. 16pts | Software, hardware, network, and database requirements are listed with certainty and with clear understanding on how to integrate it for the implementation. 20pts |
| Prototype (30%) | Poorly designed/Presented a mockup design (image format). 6pts | With menus and navigation but confusing. 12pts | Good design but evidently needs improvement. 18pts | Good design and processes are clearly defined. 24pts | Each design is carefully analyzed, easy to use and understand, with clear navigation, and user-oriented. 30pts |

COURSE OUTLINE

| TIME FRAME | COURSE CONTENT (No. of Hours/Topic) | DESIRED STUDENT LEARNING OUTCOMES/COMPETENCIES At the end of each topic and semester, the students can: | OUTCOME-BASED (OBA) ACTIVITIES (Teaching & Learning Activities) | EVIDENCE OF OUTCOMES (Assessment of Learning Outcome) | COURSE LEARNING OUTCOMES | PROGRAM OUTCOMES | MODE OF DELIVERY <i>Note: Which ever mode of delivery is applicable to the students, adapt a flexible learning delivery as appropriate to the required activities.</i> | | |
|------------|--|--|---|--|--------------------------|------------------|---|---------------|----------------|
| | | | | | | | BLENDED | PURELY ONLINE | PURELY OFFLINE |
| | TOPIC 1: WMSU VMGO, Classroom Policies, Course Overview, Course Requirements, Grading System (2 hours) | | | | | | | | |
| Week 1 | ✓WMSU VMGO, Classroom Policies, Course Overview, Course Requirements, Grading System ✓Introduction to gender sensitivity, responsiveness and equality in the classroom and society. ✓Different laws on gender based biases and violence and the Magna Carta of Women | ✓Exhibit awareness and appreciation of the University Vision, Mission & Quality Policy, College Goals, and Program objectives. ✓Demonstrate understanding of the classroom policies, course requirements, and grading system. Exhibit efforts to understand and apply gender equality concepts. ✓Demonstrate gender awareness and knowledge on gender issues | ✓Individual participation in class discussion and group presentation using a rubric to assess quality of participation. ✓Video Presentation on Violence Against Women and other gender-based related videos. ✓Group activity: members are chosen randomly and are asked to share : ✓Gender-biased experiences ✓Identify gender bias | ✓Rubric score cards of class participation accomplished by: ✓ Professor ✓ Peer ✓ Self ✓Video Presentation on Violence Against Women and other gender-based related videos. ✓Group activity: members are chosen randomly and are asked to share : ✓ Gender-biased experiences ✓ Identify gender bias and | | B,C,D | | | |

COURSE OUTLINE

| TIME FRAME | COURSE CONTENT (No. of Hours/Topic) | DESIRED STUDENT LEARNING OUTCOMES/COMPETENCIES At the end of each topic and semester, the students can: | OUTCOME-BASED (OBA) ACTIVITIES (Teaching & Learning Activities) | EVIDENCE OF OUTCOMES (Assessment of Learning Outcome) | COURSE LEARNING OUTCOMES | PROGRAM OUTCOMES | MODE OF DELIVERY <i>Note: Which ever mode of delivery is applicable to the students, adapt a flexible learning delivery as appropriate to the required activities.</i> | | |
|------------|--|---|---|---|--------------------------|------------------|---|--|--|
| | | | | | | | BLENDED | PURELY ONLINE | PURELY OFFLINE |
| | Topic 1 (Cont.): Introduction to Software Engineering(3 hours) | | | | | | <ul style="list-style-type: none">• Online meetings• LMS• Video/Slide presentation• Equivalent coverage through handouts | <ul style="list-style-type: none">• Online meetings• LMS• Video/Slide presentation | <ul style="list-style-type: none">• Equivalent coverage through handouts |
| Week 1 | <ul style="list-style-type: none">✓Professional Software Development✓Importance of Software Engineering✓Roles and responsibilities in a software engineering team✓Software Engineering Ethics✓Case Studies | <ul style="list-style-type: none">✓Define software engineering✓Demonstrate understanding of Software Engineering✓Differentiate software products✓Identify essential attributes of good software✓Discuss the importance of software engineering✓Demonstrate understanding of Software Engineering Ethics✓Discuss issues of professional responsibility✓Discuss the ACM/IEEE Code of Ethics and principles | <ul style="list-style-type: none">✓Class discussion✓Audio-Visual Presentation✓Lab Activity: Work Style Test | <ul style="list-style-type: none">✓Assignment Submission: Types of Software✓Lab Activity Submission✓Rubric for Lab Activity✓Quiz | A | A,B,C,D | | | |

COURSE OUTLINE

| TIME FRAME | COURSE CONTENT (No. of Hours/Topic) | DESIRED STUDENT LEARNING OUTCOMES/COMPETENCIES At the end of each topic and semester, the students can: | OUTCOME-BASED (OBA) ACTIVITIES (Teaching & Learning Activities) | EVIDENCE OF OUTCOMES (Assessment of Learning Outcome) | COURSE LEARNING OUTCOMES | PROGRAM OUTCOMES | MODE OF DELIVERY <i>Note: Which ever mode of delivery is applicable to the students, adapt a flexible learning delivery as appropriate to the required activities.</i> | | |
|------------|---|--|---|--|--------------------------|------------------|---|---------------|----------------|
| | | | | | | | BLENDED | PURELY ONLINE | PURELY OFFLINE |
| | Topic 2: Project Selection (5 hours) | | | | | | | | |
| Week 2 | ✓Company Establishment ✓Project Hunting ✓Initial Data Gathering ✓Company Advertisement ✓Dealing with a Client | ✓Apply how to establish a software company ✓Enumerate list of acceptable software with enough complexity ✓Design company logo ✓Define own’s company mission, vision, and policies ✓Understand roles and responsibilities ✓Identify company organization | ✓Class discussion ✓Audio-Visual Presentation ✓Lab Activity: Company Establishment and Project Hunting | ✓Lab Activity Submission ✓Rubric for Lab Activity ✓Client Agreement Form | B | A,B,C,D | | | |

COURSE OUTLINE

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|--------------|---|---|---|---|--------------------------|------------------|---|--|--|
| | | | | | | | BLENDED | PURELY ONLINE | PURELY OFFLINE |
| | Topic 3: <i>Software Process Models</i> (10 hours) | | | | | | | | |
| Week 3 and 4 | ✓Software Process Models ✓Process Activities ✓Process Definition ✓Software Specification ✓Software Validation ✓Coping with Change ✓Agile Software Development | ✓Discuss software process ✓Define software process model ✓Enumerate different software process models ✓Differentiate software process models ✓Discuss different process activities ✓Understand advantages and disadvantages of different process model ✓Discuss agile methodology | ✓Class discussion ✓Audio-Visual Presentation ✓Group Activity: Report on Assigned SDLC Model | ✓Rubric for SDLC Report ✓SDLC Report Submission ✓Quiz | A,B | A,B,C,D | • Online meetings • LMS • Video/Slide presentation • Equivalent coverage through handouts | • Online meetings • LMS • Video/Slide presentation | • Equivalent coverage through handouts |

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| | | | | | | | BLENDED | PURELY ONLINE | PURELY OFFLINE |
| | Topic 4: Project Management (15 hours) | | | | | | | | |
| Week 5 , 6, and 7 | ✓Project Plan | ✓Create project action plan | ✓Class discussion | ✓Assignment and Lab Activity Submission | B | A,B,C,D | • Online meetings • LMS • Video/Slide presentation • Equivalent coverage through handouts | • Online meetings • LMS • Video/Slide presentation | • Equivalent coverage through handouts |
| | ✓Project Management | ✓Identify Milestones and Deliverables | ✓Audio-Visual Presentation | ✓Rubric for Assignment and Lab Activity | | | | | |
| | ✓People Management | ✓Create Gantt Chart | ✓Lab Activity: Action Plan | ✓Quiz | | | | | |
| | ✓Risk Management | ✓Understand how to manage team | ✓Lab Activity: Project Board | | | | | | |
| | ✓Work Breakdown Structure | ✓Enumerate characteristics of a good Project Manager | ✓Assignment: WBS and CPM | | | | | | |
| | ✓Critical Path | ✓Identify project risks | ✓Lab Activity: Project Costing | | | | | | |
| | ✓Cost Management | ✓Device Risk assessment | | | | | | | |
| | | ✓Create WBS and Network Diagram | | | | | | | |
| | | ✓Identify critical path and slack on a project plan | | | | | | | |
| | | ✓Discuss project costing | | | | | | | |
| | | ✓List tangible and intangible benefits of a project | | | | | | | |

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| | Topic 5: 6 Points of Feasibility (5 hours) | | | | | | | | |
| Week 8 | ✓Technology Gap Analysis ✓Candidate Solution Matrix ✓Operational Feasibility ✓Technical Feasibility ✓Economic Feasibility ✓Schedule Feasibility ✓Feasibility Analysis | ✓Identify off-the-shelf solution ✓Analyze Technology Gap ✓Create Solution Matrix ✓Discuss different points of feasibility ✓Design feasibility analysis | ✓Class discussion ✓Audio-Visual Presentation ✓Lab Activity: Project Feasibility Analysis | ✓Lab Activity Submission ✓Rubric for Lab Activity ✓Quiz | B | A,B,C,D | • Online meetings • LMS • Video/Slide presentation • Equivalent coverage through handouts | • Online meetings • LMS • Video/Slide presentation | • Equivalent coverage through handouts |

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| | | | | | | | BLENDED | PURELY ONLINE | PURELY OFFLINE |
| | Topic 6: Project Proposal (10 hours) | | | | | | <ul style="list-style-type: none">• Online meetings• LMS• Video/Slide presentation• Equivalent coverage through handouts | <ul style="list-style-type: none">• Online meetings• LMS• Video/Slide presentation | <ul style="list-style-type: none">• Equivalent coverage through handouts |
| Week 9 and 10 | <ul style="list-style-type: none">✓Project Proposal Outline and Guidelines✓Presentation Outline✓Tools for Mockups | <ul style="list-style-type: none">✓Create Project Proposal Document✓Create Project Proposal Presentation✓Design Project Proposal Mockups | <ul style="list-style-type: none">✓Group Consultation✓Group Presentation for SE project proposal✓SE project proposal assessment and evaluation | <ul style="list-style-type: none">✓Project Proposal Document Submission✓Rubric for Project Proposal Document✓Rubric for Project Proposal Presentation | A,B,F | A,B,C,D | | | |

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| | Topic 7: Requirements Engineering (5 hours) | | | | | | | | |
| Week 11 | ✓Funtional and Non- functional requirements ✓Software Requirements Document ✓RE Specification ✓RE Processes ✓Elicitation and Analysis ✓Validation and Management | ✓Understand user and system requirements ✓Identify system’s functional and non-functional requirements ✓Create SRS Document ✓Discuss the requirements engineering activities ✓Discuss the requirements validation and management | ✓Class discussion ✓Audio-Visual Presentation ✓Lab Activity: Functional and Non- Functional Requirements | ✓Lab Activity Submission ✓Rubric for Lab Activity | C,D | A,B,C,D | • Online meetings • LMS • Video/Slide presentation • Equivalent coverage through handouts | • Online meetings • LMS • Video/Slide presentation | • Equivalent coverage through handouts |

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| | Topic 8: Requirements Modeling (15 hours) | | | | | | | | |
| Week 12, 13, and 14 | ✓Use Case Diagrams ✓Context Modeling ✓Data Flow Diagrams ✓Process Modeling ✓Data Modeling | ✓Design system use cases ✓Design context and data flow diagrams ✓Design ERD ✓Discuss the different requirements modeling techniques ✓Apply appropriate modeling techniques to software project | ✓Class discussion ✓Audio-Visual Presentation ✓Lab Activity: Use Cases ✓Lab Activity: Context and Data Flow ✓Lab Activity: ERD | ✓Lab Activity Submission ✓Rubric for Lab Activity ✓Quiz | C,D | A,B,C,D | <ul style="list-style-type: none">• Online meetings• LMS• Video/Slide presentation• Equivalent coverage through handouts | <ul style="list-style-type: none">• Online meetings• LMS• Video/Slide presentation | <ul style="list-style-type: none">• Equivalent coverage through handouts |

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| | Topic 9: Pre-Final Project Consultation (10 hours) | | | | | | <ul style="list-style-type: none">• Online meetings• LMS• Video/Slide presentation• Equivalent coverage through handouts | <ul style="list-style-type: none">• Online meetings• LMS• Video/Slide presentation | <ul style="list-style-type: none">• Equivalent coverage through handouts |
| Week 15 and 16 | <ul style="list-style-type: none">✓Group Consultation✓Feedback✓Presentation Tips | <ul style="list-style-type: none">✓Present the current progress of the system✓List feedbacks for improvement | <ul style="list-style-type: none">✓Convert mockups to prototype✓Design prototype based on user and system requirements✓Group project presentation | <ul style="list-style-type: none">✓System Update Submission✓Rubric for Consultation | E,F,G | A,B,C,D | | | |

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| | Topic 10: Final Project Presentation (10 hours) | | | | | | | | |
| Week 17 and 18 | ✓Project Presentation Outline and Guidelines ✓Presentation Outline ✓Tools for Prototyping | ✓Create Project Document ✓Create Project Presentation ✓Design Project Prototype | ✓Group Presentation for SE 1 project presentation ✓SE 1 project assessment and evaluation | ✓Project Document Submission ✓Rubric for Project Document ✓Rubric for Project Presentation | E,F,G | A,B,C,D | • Online meetings • LMS • Video/Slide presentation • Equivalent coverage through handouts | • Online meetings • LMS • Video/Slide presentation | • Equivalent coverage through handouts |

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| Prepared by: | Recommending Approval by: | Concurred By: | Approved by: |
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