**OBE Course Syllabus**

**1st Semester, A.Y. 2023 2024**

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| **Vision Statement:** | | | | An advanced and adaptive university pursuing quality education, lifelong gender – sensitive learning environment, responsive research – based community programs and transparent governance with sustainable resource generation by 2025 | | | | **Mission Statement:** | | To provide excellence in instruction, research, extension and production that magnifies W.I.S.D.O.M. in leadership through Total Quality Management System responsive to the challenges of the 21st century education. | | | | | | |
| **Core Values:**  *Educating People, Enriching Lives and Expanding Opportunities with:*  **W** – Wisdom for Truth and Knowledge  **I** – Ingenuity in Research, Extension and Production  **S** – Sustainability of Good Deeds  **D** – Dexterity in Management of Resources  **O** – Orchestrator of Good Practice in Achieving Goals, and  **M** – Magnanimity in Dealing with People and God’s Creation | | | | | | | | | | | | | | | | |
| **MSC Graduates’ Attributes (Exit or Culminating Outcomes)** | | | | | | | | | | | | | | | | |
| ***Every MSCian Graduate is*** | | | | | | | | ***Institutional Outcomes: Graduates of Marinduque State College*** | | | | | | | | |
| * ***M***orally upright, patriotic and law abiding citizen * ***S***killed, competent and competitive professional * ***C***reative, innovative, resourceful and entrepreneurial individual * ***I***ntellectual lifelong learner and generator of new knowledge * ***A***r­­­­­­­­­­ticulate and reflective communicator * ***N***urturing and passionate leader | | | | | | | | * Demonstrate responsible citizenship, cultural pride, ecological preservation, and ethical decision making. * Practice skills, abilities and competencies with precision and mastery at par with global standards. * Contribute to the improvement of quality of life by engaging in ingenious and productive activities. * Think critically, generate new knowledge, create and reengineer techniques and methodologies, and systematize progressive processes toward economic growth and sustainability. * Contemplate, communicate and exchange ideas and insights meaningfully and with care and proficiency. * Cultivate and foster justness, camaraderie, peace and unit amidst diversity. | | | | | | | | |
| **Quality Policy:** | | | Marinduque State College is a research driven higher education institution committed to provide excellent services to its stakeholders the highest level of satisfaction through a quality management system imbued with its Core Values, guided by its Ten Point Agenda and by adhering to globally adopted quality standards.  *We endeavor to:*   1. Establish harmonious partnership with our stakeholders and clients in order to effect mutually beneficial results. 2. Maintain the highest degree of excellence and work ethics that respect the innate dedication and commitment of our employees and stakeholders. 3. Develop a culture of continual improvement in our processes. 4. Sustain effective, efficient and accessible delivery of goods and services to meet the needs of the College and to comply with applicable requirements. 5. Maintain accountable, transparent, consultative and participative leadership between and among employees and stakeholders in decision making processes. | | | | | | | | | | | | | |
| **Course Title:** | Introduction to Ethical Hacking | | | | **Course Description:** | | It is an introduction to the design, creation and maintenance of web pages. Students will be able to evaluate and create quality web pages with accordance to the web design principles and standards using hypertext markup languages, scripting languages and web design tools and application. | | | | | **Course Code:** | ITS113 | **Credit Units:** | | 3 |
| **Course Prerequisites/(Co requisites):** | | | | | | |  | | **Course Requirements:** | | Major Exam, Personal Portfolio, Project | | | | | |
| **Program Outcomes:** | | 1. Apply knowledge of computing, science and mathematics appropriate to the discipline. 2. Understand best practices and standards and their applications. 3. Analyze complex problems and identify and define the computing requirements to its solutions. 4. Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems. 5. Design, implement and evaluate computer-based systems, processes, components, or programs 6. Integrate IT based solutions into the user environment effectively. 7. Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession. 8. Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal. 9. Assist in the creation of an effective IT project plan. 10. Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions. 11. Analyze the local and global impact of computing information technology on individuals, organizations, and society. 12. Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology. 13. Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development. | | | | | | | | | | | | | | |
| **Course Intended Learning Outcomes (CILOs):** | | | | | | *At the end of the course, the learners can:* | | | **PO Link/s** | *At the end of the course, the learners can:* | | | | | **PO Link/s** | |
| 1. Demonstrate a foundational understanding of ethical hacking concepts and methodologies.  * Demonstrate web design principles ang best practices in UI/UX | | | | | | | | | *b,g* | 1. Develop and execute penetration testing strategies to assess the security of information systems.  * Familiarize with JavaScript concepts such as variables, arrays, conditionals, and loops and create computational formulas which utilizes logical operations and mathematical expressions to solve practical web design problems. * Design and implement interactive responses on web pages. | | | | | *a,j* | |
| 1. Identify and assess vulnerabilities in computer systems and networks using ethical hacking techniques.  * Articulate principles of creating an effective web page, including an in depth consideration of information architecture and how it affects the overall design and impact. | | | | | | | | | *c,i* | 1. Analyze the impact of cybersecurity threats and vulnerabilities on individuals, organizations, and society.  * Familiarize with web hosting services and domain name acquisition. * Demonstrate skill in updating and managing live website. | | | | | *k,m* | |
| 1. Apply ethical hacking tools and techniques to test and secure computer systems and networks.  * Learn techniques in responsive web design, including media queries and Flexbox. * Evaluate web design problem, and recommend designing solutions that enable websites to adapt in various devices and screen sizes | | | | | | | | | *e,h* | 6. Demonstrate ethical conduct and responsibility in the practice of ethical hacking, adhering to legal and professional standards. | | | | | *d,i* | |

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| **CILO No.** | **Essential Content** | **Time Allotment** | **Teaching – Learning Activities** | | | **Outcomes Based Assessment** | **Educational Resources** |
| **Flexible / Distance / Remote** | | **Residential or Face to Face (F2F**) |
| ***Synchronous*** | ***Asynchronous*** |
|  | ***Preliminaries*** *(VMGO, School Goals, Quality Policy, MSC Graduate Attributes)* | *30 mins* | *The teacher will meet with the students and hold a live chat to further discuss and answer questions about the class orientation.*  *During consultation hours, the student will send questions.* | *The teacher will use Google Classroom to distribute links and materials for the class orientation.*  *The student will read the VMGO, School Goals, Quality Policy, MSC Graduate Attributes, as well as the class policies, subject requirements, and rating system.* | *Sharing of thoughts with regards to VGMO and GAD* |  | *Student Handbook and Faculty Manual* |
| **Unit 1: Introduction to Ethical Hacking** | | | | | | | |
| **CILO 1** | ***Introduction to Ethical Hacking***   * *Overview of Ethical Hacking* * *History and Evolution* * *Legal and Ethical Aspects* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Review the materials and explore additional resources independently. | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Class discussion and Q&A* * *Lecture on the importance of ethical hacking* | *A Hacking for Dummies by Kevin Beaver || 2022*  *Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen || 2022* |
| **CILO 2,3** | ***Foot printing and Reconnaissance***   * *Footprinting techniques* * *Information gathering* * *Google Hacking* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform footprinting exercises remotely using provided resources. | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Hands on lab exercises* * *Group discussion* * *Homework assignment* | A Hacking for Dummies by Kevin Beaver || 2022  Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen || 2022 |
| **CILO 2,3** | ***Scanning Networks***   * *Port scanning techniques* * *Vulnerability scanning* * *Network mapping* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform Network Scanning exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Live demonstrations* * *In class network scanning exercises* | A Hacking for Dummies by Kevin Beaver || 2022  Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen || 2022 |
| **CILO 2,3** | ***Enumeration***   * *Enumeration techniques* * *SNMP enumeration* * *LDAP enumeration* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Hands on exercises Enumeration practice on virtual networks* | A Hacking for Dummies by Kevin Beaver || 2022  Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen || 2022 |
| **CILO**  **2,3** | ***System Hacking***   * *Password cracking* * *Privilege escalation* * *Escalating privileges on Windows and Linux systems* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Group discussions Password cracking challenges Demonstrations* | A Hacking for Dummies by Kevin Beaver || 2022  Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen || 2022 |
|  | ***Malware Threats***   * *Types of malwares* * *Malware analysis* * *Malware protection and prevention* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources. | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Malware analysis practice* * *Discussion on recent malware incidents* | A Hacking for Dummies by Kevin Beaver || 2022  Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen || 2022 |
|  | ***Sniffing***   * *Sniffing concepts* * *Packet sniffing tools* * *Man in the Middle attacks* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Packet capture exercises Wireshark hands on MITM attack simulations* | A Hacking for Dummies by Kevin Beaver || 2022  Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen || 2022 |
|  | ***Social Engineering***   * *Phishing attacks* * *Pretexting* * *Tailgating* * *Impersonation* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources. | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Cyber security Awareness Video Campaign* | A Hacking for Dummies by Kevin Beaver || 2022  Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen || 2022 |
| **MIDTERM EXAM** | | | | | | | |
|  | ***Web Application Hacking***   * *Web application vulnerabilities* * *SQL injection* * *Cross Site Scripting (XSS)* | 10 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources. | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Web application scanning* * *SQL injection exercises* * *XSS challenges* | Ethical Hacking Techniques and Countermeasures for Cybercrime Prevention by Nabie Y. Conteh || 2021  Ethical Hacking a Hands-on Introduction to Breaking in by Daniel G. Graham || 2021 |
|  | ***Wireless Network Hacking***   * *Wireless network security* * *WEP, WPA, WPA2 vulnerabilities* * *Cracking wireless passwords* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Wireless network penetration exercises* * *Password cracking labs* | Hands-On Ethical Hacking and Network Defense by M.T. Simpson; N. D. Antill; R. S. Willson || 2021 |
|  | ***Mobile Platform Hacking***   * *Mobile platform vulnerabilities* * *Android and iOS security* * *Mobile malware* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Mobile device assessment* * *Malware analysis on mobile platforms* | Hands-On Ethical Hacking and Network Defense by M.T. Simpson; N. D. Antill; R. S. Willson || 2021 |
|  | ***IoT and Cloud Security***   * *IoT security challenges* * *Cloud security concepts* * *Cloud based attacks* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *IoT device assessment* * *Cloud security discussions* | Hands-On Ethical Hacking and Network Defense by M.T. Simpson; N. D. Antill; R. S. Willson || 2021 |
|  | ***Cryptography***   * *Cryptographic fundamentals* * *Encryption algorithms* * *Cryptanalysis techniques* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Cryptography exercises* * *Breaking encryption Cryptanalysis challenges* | Hands-On Ethical Hacking and Network Defense by M.T. Simpson; N. D. Antill; R. S. Willson || 2021 |
|  | ***Evading IDS, Firewalls, and Honeypots***   * *Intrusion Detection Systems (IDS)* * *Firewall evasion techniques* * *Honeypots* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources. | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Evasion tactics IDS/Firewall evasion labs Honeypot setup* | Hands-On Ethical Hacking and Network Defense by M.T. Simpson; N. D. Antill; R. S. Willson || 2021 |
|  | ***Ethical and Legal Considerations***   * *Ethical responsibilities* * *Legal aspects* * *Reporting vulnerabilities responsibly* | 5 Hours | **Instructor will:**  Conduct face to face lectures to introduce key concepts and engage in Q&A sessions.  **Students will:**  Attend the scheduled lecture, ask questions, and participate in discussions. | **Instructor will:**  Provide introductory materials, reading assignments, and access to online resources.  **Students will:**  Perform laboratory exercises remotely using provided resources | *The teacher will conduct a face-to-face session on the designated time and classroom* | * *Legal case studies Ethical dilemmas in ethical hacking* | Hands-On Ethical Hacking and Network Defense by M.T. Simpson; N. D. Antill; R. S. Willson || 2021 |
| **FINALTERM EXAM** | | | | | | | |
| **Assessment System and Performance Standards**   * *At the end of the semester the student should obtain a grade of 3.0 in order to pass the course.* | | | | **Performance Criteria:**   * Quiz – 10% * Project – 20% * Activities & Performance 30% * Major Exam 40% | | | |
| **Institutional Policies:**   * *Policies and guidelines (specifically on attendance, absences, and student discipline) provided in the Student Handbook, as amended, and approved by the MSC – Board shall be implemented.* * *Health Guidelines for AY 2020 2021 set by the MSC Health Services Unit will be implemented and strictly followed in the event of face-to-face learning specifically:*   + *Continuous implementation of NO MASK, NO ENTRY policy in classrooms.*   + *It is recommended that any person not in good health condition should refrain from going to school or attending face to face classes.*   + *Continuous compliance to minimum public health standard such as:*     - * *Wearing of facemask and face shields*       * *1.5 meter – 2-meter social distancing*       * *Regular hand washing*       * *Regular disinfection and sanitation measures.* * *Deployment of available flexible learning and alternative modes of delivery will be exercised as per CHED Advisory No. 6 7. Thus, the students shall communicate with the teacher for their available resources and platforms in order to set appropriate learning arrangement for each individual.* | | | | **Class Policies:**   * *Student who was found cheating during examinations and/or quizzes will get an equivalent grade of 5.0 for that quiz/examination.* * *This course makes extensive use of electronic information from a host of sources. Students are expected to provide a citation for any work that is not original to the student (i.e., is someone else's idea or words).* * *Cellphones or any electronic device during class time is prohibited, except with permission of the instructor for emergency situation and for reasons directly related to class activity.* * *A student who has been absent may be excused upon presentation of a medical certificate to the instructors concerned for re – admission to his/her classes but not later than the first day of class after the student returned.* * *This course makes extensive use of electronic information from a host of sources. Students are expected to provide a citation for any work that is not original to the student (i.e., is someone else's idea or words).* | | | |
| **References:**   * *A Hacking for Dummies by Kevin Beaver || 2022* * *Gray Hat Hacking the Ethical Hacker’s Handbook by Dr. Allen Harper, Ryan Linn, Stephen Sims, Michael Baucom, Daniel Fernandez, Huáscar Tejeda, Moses Frost || 2022* * *Ethical Hacking Techniques and Countermeasures for Cybercrime Prevention by Nabie Y. Conteh || 2021* * *Ethical Hacking a Hands-on Introduction to Breaking in by Daniel G. Graham || 2021* * *Hands-On Ethical Hacking and Network Defense by M.T. Simpson; N. D. Antill; R. S. Willson || 2021* | | | | **Suggested Links and Readings:**  *CEHv11 Lab Module || EC Council* | | | |

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