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| **ENRG 62 - Energy Audit Report Writing  COURSE DESCRIPTION:** Capstone course for commercial buildings energy audit program. Concurrent enrollment with ENRG 63 Field Work in Commercial Energy Audit. Writing compelling and accurate technical report of audit findings for non-technical audience. Elements, formats, templates, structure, graphics. |
| **36 Lecture Hours** |

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| **LEARNING OUTCOMES:** |
| * Assess the purpose of the audit report, scope of work, and level of detail required for the report * Organize information and create a plan for report writing * Manage time effectively to meet client and employer needs * Summarize audit findings and recommendations clearly and concisely * Utilize tables, charts, and graphics to illustrate information and improve client understanding of findings * Formulate prioritized recommendations that evaluate energy efficiency measure (EEM) recommendations in terms of energy savings and financial costs/ benefits to the client |
| **COURSE TOPICS:** |
| 1. Purpose of the audit report   A. Information  1. To communicate audit findings to client building owner/manager  2. To recommend energy efficiency measures (EEMs) to the client  3. To provide financial analysis for the EEMs recommended to aid the client in making decisions about implementing EEMs  B. Proposal  1. Proposes actions that can be taken by the client  2. Possible sales tool for future services from the auditor C. Evidence of client's compliance with local codes requiring audits   1. Report format A. Companies performing audits frequently have proprietary template   B. Executive summary showing scope of work performed and providing brief description of report findings C. Content is determined by level of audit (ASHRAE Level 1, 2, or 3) D. Information must be presented clearly and concisely E. Technical information needs to be presented in prose for a non-technical audience, with supporting documentation F. Use of tables, charts, graphics to illustrate information   1. Time management   A. Time constraints in preparing report  B. Client expectations of timeliness  C. Review original scope of work or contract  D. Organizing data and information prior to report writing  E. Creating an outline or template for the report   1. Report for an ASHRAE Level 1, walk-through basic energy analysis A. Most basic of analysis levels requires a brief report   B. Information contained in report  1. Energy use intensity (EUI) information  2. Preliminary energy use intensity (EUI) analysis is conducted prior to walk-through  3. Compile billing data  4. Calculate kBTU/sf or MJ/m2  5. Compare to similar buildings  a. Energy Star / CBECs shows EUI nationally  b. Energy IQ (www.energyiq.lbl.gov) shows EUI for California  c. Client's portfolio of other buildings  d. Correct for weather and use schedules  6. Estimate savings from utility rate change  a. Summarize utility data  b. Estimate of financial savings if EUI met target  7. Recommend the low-cost and no-cost EEMs and estimate of savings from each  8. Identify capital projects   1. Report for an ASHRAE Level 2 energy survey and engineering analysis A. Most common type of audit requires a more comprehensive report B. Information contained in report 2. Report for an ASHRAE Level 3 detailed survey and analysis A. Highest level of audit and energy analysis requires additional report content  B. Level 3 report contains all information of Level 2 report, plus  1. Additional testing and monitoring data  2. Detailed system modeling  3. Schematic layouts for EEM recommendations  4. Detailed descriptions of recommended EEMs  5. Detailed EEM cost estimates |
| **TYPES OF ASSIGNMENTS:** |
| 1. In-class 2. Out-of-class |
| **TEXTBOOKS & RESOURCES:** |
| * Double-click to start entering values |