ELG4125 Case Study: Submission 3 on Protection Systems

Draw the power plant and transmission system and provide protection zoning to simplify fault isolation.

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Outline the required protection equipment

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| Instrument Transformers |  |  |  |
| Relays |  |  |  |
| Circuit Breakers |  |  |  |
| Lightning Protection |  |  |  |
| Grounding |  |  |  |

Protection Equipment Ratings

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| --- | --- |
| Generator Transformer | Size CT for both sides of the transformer using Table 10.2 and Example 10.10 |
| Transmission Transformer | Size CT for both sides of the transformer using Table 10.2 and Example 10.10 |

Circuit Breaker Sizing

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| Use Table A.2 to find the leakage reactance assuming the fault current reach values up to 20 times. Find the equivalent reactance based on number of generating transformers used. Then find the short circuit apparent power and corresponding short circuit current to select the right circuit breaker. |

Summary of Protection System

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| --- | --- | --- |
| Device | Protection Circuit | Equipment Rating |
| Generators |  |  |
| Generating Transformers |  |  |
| Busbars |  |  |
| Transmission Line |  |  |
| Transmission Transformer |  |  |