

**-SQA-SCOTTISH QUALIFICATIONS AUTHORITY**

**Hanover House  
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**NATIONAL CERTIFICATE MODULE DESCRIPTOR**

**-Module Number- 0064206 -Session-1986-87**

**-Superclass- XM**

**-Title- TELECOMMUNICATIONS LINES: PLANNING**

**-DESCRIPTION-**

Type and Purpose A specialist module which enables the student to acquire a knowledge of the economics and planning of local telecommunication networks. It is designed for students engaged in the various aspects of line transmission of speech and data.

Preferred Entry Level 04200 Principles of Telecommunication Systems

This module should be taken in conjunction with:

04205 Telecommunications Lines : Cables and  
42111 Telecommunications Lines : Maintenance

Learning Outcomes The student should:

1. know the need for forecasting;
2. know signalling and transmission standards;
3. calculate the cost of a capital project in local line and plant provisions using given data;
4. know the design considerations in planning local development schemes, and calculate out- of centre cabling costs for an exchange.

Content/ Context Corresponding to the Learning Outcomes:

1. effect of future customer forecasts on local line plant requirements. Effects of forecast numbers and call duration on trunk and junction plant requirements. Need for feasibility studies. Flexibility of cross connection points in local networks.

2. factors limiting the size of an exchange area in terms of signalling and transmission limits.

Effect of signalling and transmission limits on conductor size and material for local lines.

The transmission plan for customer to customer call, description and purpose.

3. method of distribution for an economic use of capital and labour and for reliability and ease of access.

Explanation of the terms:

- (a) plant depreciation;
- (b) interest payments on capital;
- (c) maintenance charges;
- (d) operating expense.

Relationship to normal annual charges.

Direct costs and indirect costs. Investment Life and Plant Life Method of calculating the costs of capital projects using the above data.

4. the need to provide line plant to meet existing and forecast demands. Need for development of schemes to overcome future inadequacies of existing line plants. Main objectives in local line development schemes, namely:
  - (a) to provide on demand service to the customer;
  - (b) to ensure that all customers lines are within transmission and signalling distance.

The factors influencing the size of an exchange area.

Compilation and use of summary and density maps. Definition of 'Practical Centre' Calculation of the practical centre of an area served by a telephone exchange. The factors influencing the choice of a telephone exchange site. Calculation procedures for determining out of centre cabling costs for an exchange some distance from the practical centre.

Suggested  
Learning and  
Teaching  
Approaches

This module could best be managed by allowing each student to have access to the plans for a local telephone area so that the Learning Outcomes are related to local information.

Students could work in groups or individually on an overall project or assignment which could be designed to meet all the Learning Outcomes of this module.

Assessment  
Procedures

All Learning Outcomes must be validly assessed.

The student must be informed of the tasks which contribute to summative assessment. Any unsatisfactory aspects should, if possible, be discussed with the student as and when they arise.

Acceptable performance in the module will be satisfactory achievement of the performance criteria for each Learning Outcome.

The following abbreviations are used below:

LO Learning Outcome

IA Instrument of Assessment

PC Performance Criteria

LO1 IA Written exercise.

PC The student correctly explains the need for forecasting and accurately details the factors to be considered.

LO2 IA Written short answer test.

PC The student correctly:

- (a) identifies the factors limiting the size of an exchange;
- (b) describes the choice of conductor size for given situations;
- (c) identifies a suitable transmission plan.

LO3 IA Costing exercise.

PC Given details of a capital project in terms of stated variables, the student correctly calculates the overall costs showing all information utilised.

LO4 IA(1) Short answer test.

PC The student correctly describes the design considerations in planning local development schemes.

IA(2) Costing exercise.

PC Given details, the student successfully calculates out of centre cabling costs for an exchange showing all information utilised.