

**DT008/2**

## **Digital Communications Engineering 1**

### **Laboratory Assessment**

As part of the laboratory assessment procedures for the module you are required to undertake a **formal element** which in this case is a report to be written outside of the assigned laboratory period.

The formal element for this laboratory requires you to produce a written report on **one** of the following laboratory exercises undertaken in this semester:

- Sampling and Reconstruction
- Delta Modulation
- Pseudo Random Binary Sequences (PRBS)

A printed copy of the report must be submitted by **12 noon on Friday 13 December 2013**. The collection point for the reports is beside the staff post pigeon holes on the 4<sup>th</sup> floor of the main DIT Kevin Street building.

Some guidelines for the production of the report:

- The reports **must** be typed.
- The front page of the report must clearly show the following:
  - Your name and class
  - The title of the report
  - The date of the report
- The following structure is suggested for the format of the report
  - **Section 1** – Statement of the laboratory objective (typically 1-2 sentences). *For example: The objective of this laboratory was to examine the statistical properties of PRBS sequences and to calculate the autocorrelation function*
  - **Section 2** – Introduction – Background information to the laboratory (typically ½ -1 page). Don't just rely on the lecture/lab notes to complete this section, use the library and other **reliable** sources of information to provide additional material here. *For example, you might wish to explain why a PRBS is an important digital test signal and where it would typically be used*

- **Section 3** – Technical description of the experiment (typically 2-3 pages). You should describe the technical details of the experiment here including any background theory etc. Describe the experimental setup (e.g. the circuitry and test equipment used), procedures used, and measurements taken. Circuit schematics and experimental set up diagrams should be used here. For example: *Figure 1: Schematic Diagram of the Delta Modulator Circuit.*
- **Section 4** – Presentation of Results (typically 2-3 pages). This is an important part of the report and care should be taken here to ensure that any results are presented in a clear and easy to understand format. The use of tables and graphs is the best way to present results. Make sure that all graphs have a title and that the axes are labelled. For example: *Figure 3: Plot of the autocorrelation function  $R(k)$  for the PRBS.* Similarly, all tables should be clearly labelled. For example: *Table 1: Verifying the Run Property of the PRBS.*
- **Section 5** – Summary and Conclusions (typically ½ - 1 page). This is the most important part of the report as it is where you explain your analysis and understanding of the laboratory exercise. You should clearly explain your interpretation of the results and the conclusions that you can draw from them. Instead of just relying on your lecture/lab notes, use the library and other reliable sources of information to expand upon your findings and conclusions.
- **Appendix** - References/Bibliography. Here you should reference any external material used in the production of the report, e.g. lectures notes, laboratory notes, text books, etc.

Finally, some do's and don'ts

- **Do** use the spell check and grammar tools.
- **Do** check the final draft for consistent styling/formatting, i.e. the same font type and size, line spacings and margins throughout.
- **Do** use colour diagrams and plots, if possible.
- **Do** have someone else double-check your final draft before printing and submitting.
- **Do** reference all sources of material used to produce the report.
- **Don't** copy coursework from other students or other sources – this is plagiarism and is not acceptable under any circumstances. Any material which is taken from another source must be referenced by citing the publication, date, and author. Any text which is quoted verbatim should be placed within quotes and referenced.