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| **TOPIC 4** | **FOR loops and loop plots** |
| SUB-TOPICS | ▪ introduction to FOR loops<br>▪ randomisation with **randperm** and **randsample**<br>▪ single-line FOR loops<br>▪ initialising array variables<br>▪ formula vectorisation<br>▪ loop plotting<br>▪ RGB colour system & RGB vectors in MATLAB<br>▪ creating polygon plots with **fill** |
| OBJECTIVES | by the end of this unit, students should be able to:<br>- write a FOR loop to repeat some basic operation a fixed number of time<br>- apply good practice to make efficient use of computing resources<br>- recognise scenarios where formula vectorisation is preferable to looping<br>- construct nested FOR loops<br>- use FOR loops to create simple plot sequences using the full range of RGB colours |
| KEY WORDS AND EXPRESSIONS | same as in Topic 3 |
| CORE STUDY MATERIALS | - Textbook reading<br>- MATLAB Summary Notes<br>- Question Bank<br>- Topic 3 Vocabulary Lists |
| TEXTBOOK STUDY | **Essential Reading**<br>- Section 2.7 (Repeating with FOR)<br>- Chapter 9 (MATLAB Graphics): Sections 9.1 and 9.2<br>- Chapter 2 Summary (p.74 - 76)<br>Also revisit Topic 3 essential reading.<br>**Recommended Reading**<br>- Section 2.8 – 2.9 (Decision and Complex Numbers)<br>- Chapter 8 (Loops – very short chapter!) |
| ADDITIONAL RESOURCES | check on MOLE |