Larbi Ben M'hidi University – Oum El Bouaghi

Faculty of Exact Sciences and Nature and Life Sciences

Department of Mathematics and Computer Science

Module: Operating Systems II

Lecturer: Dr. Moustafa Sadek KAHIL

2025 – 2026

Tutorial Series 4

Exercise 1:

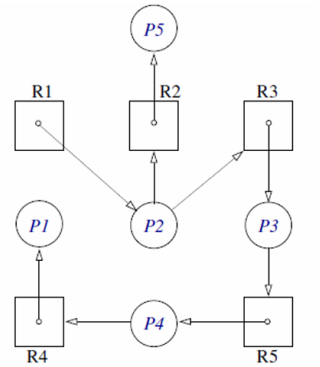
Consider the following resource allocation:

- Process A **holds** resource R and **requests** resource S;
- Process B **requests** resource T;
- Process C **requests** resource S;
- Process D **holds** resource U and **requests** resources S and T;
- Process E **holds** resource T and **requests** resource V;
- Process F **holds** resource W and **requests** resource S;
- Process G **holds** resource V and **requests** resource U.

1. Construct the Resource Allocation Graph (RAG).
2. Is there a deadlock? If yes, which processes are involved?

Exercise 2:

The resource allocation graph for a system at a given moment is as follows:



Is there a risk of deadlock at this moment? If yes, justify. If no, modify this graph by adding an arrow so that a risk of deadlock exists.