University: Mohamed Khider University of Biskra
Faculty: Faculty of Exact Sciences
Department: Department of SM
Academic Year: 2026/2027
Prepared by: Dr OUAAR Fatima

Module: Scientific Programming
Level: 2nd Year LMD
Specialty: Physics/MCPC
Session: Practical Work N°3
Subject: Sets

SESSION 3
Sets – Creation, Operations and Uses

LEARNING GOALS

- Understand that a set contains unique elements.
- Create sets and remove duplicates.
- Use union, intersection and difference.
- Recognize simple uses of sets in data handling.

SHORT THEORY

A **set** is an unordered collection of unique elements. It is useful for removing repeated values and comparing groups.

1. Creating a set

LET'S TRY

```
A = {1, 2, 3, 4}
B = {3, 4, 5, 6}

print(A)
print(3 in A)

```

2. Main operations

GUIDED PRACTICE

```
print(A | B)   # union
print(A & B)   # intersection
print(A - B)   # difference

```

Union combines elements; intersection gives common elements; difference gives elements in the first set but not the second.

3. Removing duplicates

LET'S TRY

```
values = [2, 2, 3, 4, 4, 5]
unique_values = set(values)

print(unique_values)

```

Guided practice

GUIDED PRACTICE

Example – two groups

```
physics = {"Ali", "Sara", "Omar", "Lina"}
math = {"Sara", "Omar", "Nadia"}

print("Both:", physics & math)
print("All:", physics | math)
print("Only physics:", physics - math)

```

PHYSICS CONNECTION

Measurement example

Suppose a sensor records repeated integer values:

```
values = [12, 15, 12, 18, 15, 20, 18]
print(set(values))

```

The set gives the distinct recorded values.

ASSESSMENT – 4 POINTS

Assessment 1 – 4 points – 20 min

1. Create and modify a dictionary of three students and their marks. (1.5 pt)
2. Use a set to remove duplicates from a list. (1 pt)
3. Compute the intersection and union of two sets. (1 pt)
4. Give one practical use of a set. (0.5 pt)

TRY IT YOURSELF – NO SOLUTION

1. Two classes contain names. Find the students common to both classes.
2. Given repeated measurement values, create the set of unique values.
3. Create two sets of physical quantities and find their common elements.