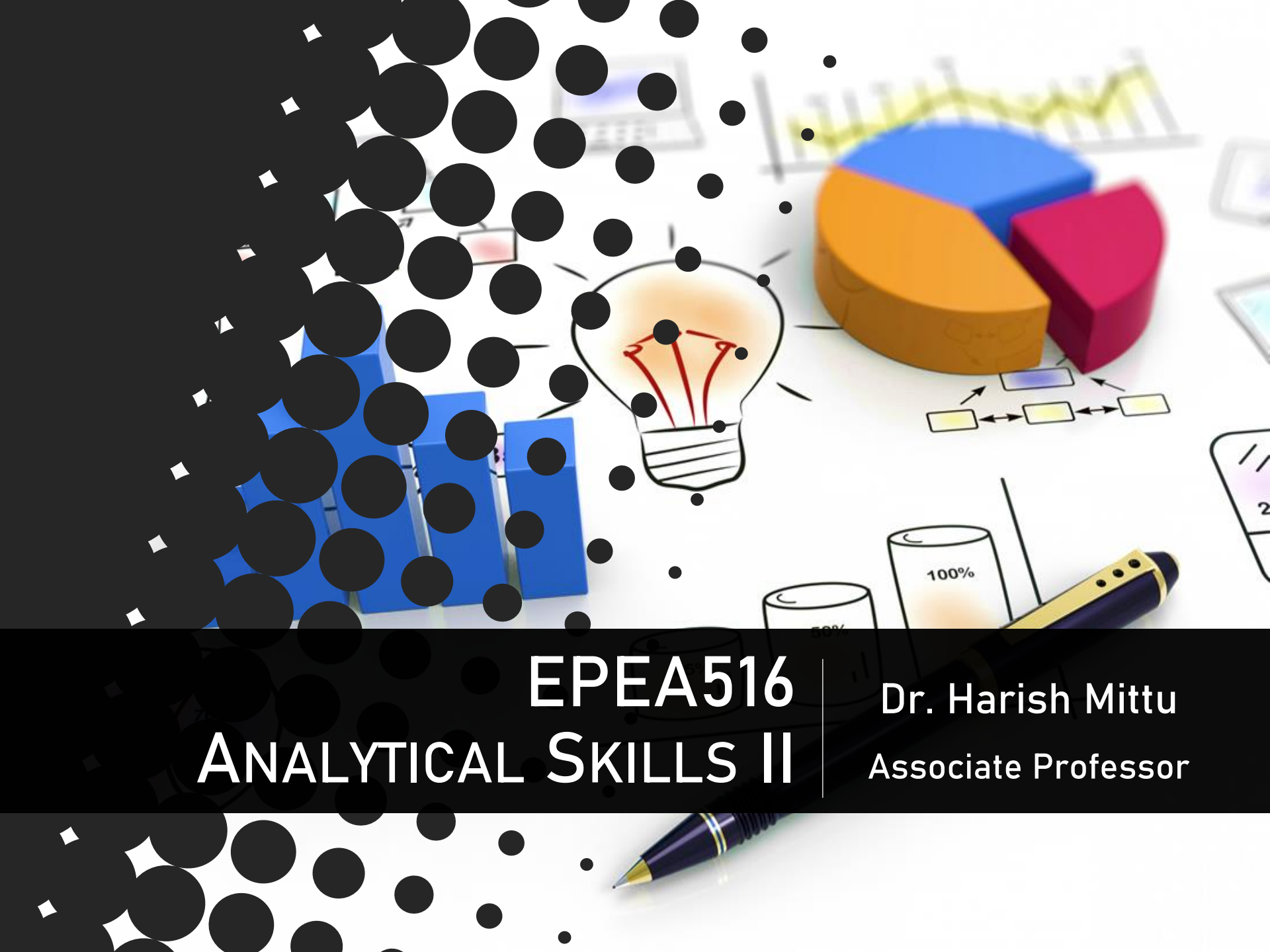

EPEA516
Analytical Skills II

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Learning Outcomes

After this lecture, you will be able to

- calculate the number of odd days in the given period,
- solve practical problems related to the concept of calendar.

Finding The Exact Day – Example 1

- What was the day of the week on 15th March, 1976?
- Solution –

15th March, 1976

= (1975 years + Period from 1.1.1976 to 15.3.1976)

Number of odd days in 1600 years = 0

Number of odd days in 300 years = 1

Number of odd days for 1900 years = 0 + 1 =1

Finding The Exact Day – Example 1

75 years = 18 leap years + 57 ordinary years

= (18 × 2 + 57 × 1) odd days

= 93 odd days

= (7 x 13 + 2) odd days

= (13 weeks + 2 odd days)

= 2 odd days

Finding The Exact Day – Example 1

Number of odd days for 1900 years = 1

75 years = 2 odd days

∴ 1975 years have = (1 + 2) odd days

= 3 odd days

Finding The Exact Day – Example 1

Period from 1.1.1976 to 15.3.1976

January + February + 15th March

= (31 + 29 +15) odd days

= 75 odd days

= (7 x 10 + 5) odd days

= (10 weeks + 5 odd days)

= 5 odd days

Finding The Exact Day – Example 1

15th March, 1976

= (1975 years + Period from 1.1.1976 to 15.3.1976)

= (3 + 5) odd days

= 8 odd days

= (7 x 1 + 1) odd days

= 1 Week +1 odd day

= 1 odd day

Finding The Exact Day – Example 1

∴ Total number of odd days till 15th March, 1976

= 1 odd day

Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Odd Day	0	1	2	3	4	5	6

Hence, day of the week on 15th March, 1976 is

Monday.

Finding The Exact Day – Example 1

Day	March, 1976				
Sun		7	14	21	28
Mon	1	8	15	22	29
Tue	2	9	16	23	30
Wed	3	10	17	24	31
Thu	4	11	18	25	
Fri	5	12	19	26	
Sat	6	13	20	27	

Finding The Exact Day – Example 2

- What was the day of the week on 21st August, 2030?
- Solution –

21st August, 2030

= (2029 years + Period from 1.1.2030 to 21.8.2030)

Number of odd days in 2000 years = 0

Finding The Exact Day – Example 2

29 years = 7 leap years + 22 non-leap years

= (7 × 2 + 22 × 1) odd days

= 36 odd days

= (5 weeks + 1 odd day)

= 1 odd day

∴ 2029 years have = (0 + 1) odd days

= 1 odd day

Finding The Exact Day – Example 2

Period from 1.1.2030 to 21.8.2030

Jan + Feb + Mar + Apr + May + Jun + Jul + 21st Aug

= (31 + 28 + 31 + 30 + 31 + 30 + 31 + 21) odd days

= 233 odd days

= (33 x 7 + 2) odd days

= (33 weeks + 2 odd days)

= 2 odd days

Finding The Exact Day – Example 2

21st August, 2030

= (2029 years + Period from 1.1.2030 to 15.8.2030)

= (1 + 2) odd days

= 3 odd days

Finding The Exact Day – Example 2

∴ Total number of odd days till 21st August, 2030

= 3 odd days

Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Odd Day	0	1	2	3	4	5	6

Hence, day of the week on 21st August, 2030 is

Wednesday.

Finding The Exact Day – Example 2

Day	August, 2030				
Sun		4	11	18	25
Mon		5	12	19	26
Tue		6	13	20	27
Wed		7	14	21	28
Thu	1	8	15	22	29
Fri	2	9	16	23	30
Sat	3	10	17	24	31

Finding The Exact Day – Example 3

- On what dates of May 2035 did Monday fall?
- Solution –

First we find the day on 1 May 2035

1 May 2035

= (2034 years + Period from 1.1.2035 to 1.5.2035)

Odd days till 2000 years = 0

Finding The Exact Day – Example 3

From 2000 to 2034 years

Odd days in 34 years

= (26 ordinary years + 8 leap year)

= (26 × 1 + 8 × 2) odd days

= 42 odd days

= 6 weeks

= 0 odd day

Finding The Exact Day – Example 3

From 2000 to 2034 years

Odd days in 34 years

= 0 odd day

Odd days till 2034 = (0 + 0) odd days

= 0 odd day

Finding The Exact Day – Example 3

Period from 1.1.2035 to 1.5.2035

Jan + Feb + Mar + Apr + 1st May

= (31 + 28 + 31 + 30 + 1)

= 121 odd days

= (17 weeks + 2 odd days)

= 2 odd days

Finding The Exact Day – Example 3

Period from 1.1.2035 to 1.5.2035

Jan + Feb + Mar + Apr + 1st May = 2 odd days

Total number of odd days till 1st May = (0 + 2)

= 2 odd days

Finding The Exact Day – Example 3

∴ Total number of odd days till 1st May, 2035

= 2 odd days

Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Odd Day	0	1	2	3	4	5	6

1 May 2035 was Tuesday.

Monday falls on 7 May 2005

Monday falls on 7th, 14th, 21st, and 28th May 2035.

Finding The Exact Day – Example 3

Day	May, 2035				
Sun		6	13	20	27
Mon		7	14	21	28
Tue	1	8	15	22	29
Wed	2	9	16	23	30
Thu	3	10	17	24	31
Fri	4	11	18	25	
Sat	5	12	19	26	

Finding The Exact Day – Example 4

- If today is Wednesday, then what will be the day of week after 37 days?
- Solution –

Today - Wednesday

37 ÷ 7

37 = 7 x 5 + 2

Remainder = 2

Two odd days

Finding The Exact Day – Example 4

∴ Total number of odd days after 37 days

= 2 odd days

Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Odd Day	0	1	2	3	4	5	6

Finding The Exact Day – Example 5

- Are the calendars for the years 2026 and 2037 same?
- Solution –

Same day on 1.1.2026 and 1.1.2037

Number of odd days - 31.12.2025 and 31.12.2036 = 0

3 leap years and 8 ordinary years

Finding The Exact Day – Example 5

3 leap years and 8 ordinary years

Number of odd days = (3 × 2 + 8 × 1)

= 14

= 2 weeks

Number of odd days = 0

∴ Calendar for the year 2026 and year 2037 are same.

Finding The Exact Day – Example 6

- What will be the last day of a century?
- 100 years - 5 odd days
- 200 years - 3 odd days
- 300 years - 1 odd day
- 400 years - 0 odd day

Day	S	M	T	W	Th	F	S
Odd Day	0	1	2	3	4	5	6

Finding The Exact Day – Example 7

- Is April and July months in a year have the same calendar?
- Solution –

April + May + June	= 30 + 31 + 30 odd days
	= 91 odd days
	= (13 x 7) odd days
	= 7 weeks
Number of Odd Days	= 0

Conclusion

- To Calculate Exact Date
  - Total Days
  - Convert – Weeks
  - Remainder or Odd Days = 0
  - Remainder ≠ 0
  - Odd Days =1, 2, 3, 4, 5, and 6

Summary

- Finding The Exact Date

That’s all for now…