Case Notes

# Chapter 19: Detailed Scheduling

## Telling Umpires Where to Go!

## Case Summary

*This case describes a situation where workforce scheduling can be applied to scheduling umpires for softball games.*

Case Analysis *This case illustrates a supply (or capacity) approach to the scheduling problem. It relates the process and challenges of scheduling in manufacturing settings to workforce scheduling. The challenges for Ross Davis is to schedule six umpires for softball games such that the umpires would work no more than four consecutive nights each week.*

## Sample Answers to Case Questions

1. How can you use workforce scheduling methods to schedule the umpires this coming summer?

The workforce scheduling method identifies three consecutive days that have the highest total workforce requirements and assigns umpires to these days until all workforce requirements are met.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | **M** | **T** | **W** | **TR** | **F** | **S** | **SU** | **Assignment** |
| **Umpires required** | 1 | 2 | 3 | 1 | 4 | 4 | 1 | Umpire 1:  F,S,SU |

MTW:6; TWTR:6; WTRF:8; TRFS:9; FSSU:9;SSUM:6,SUMT:4

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | **M** | **T** | **W** | **TR** | **F** | **S** | **SU** | **Assignment** |
| **Umpires required** | 1 | 2 | 3 | 1 | 3 | 3 | 0 | Umpire 2:  TR, F,S |

MTW:6; TWTR:6; WTRF:7; TRFS:7; FSSU:6; SSUM:4; SUMT:3

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | **M** | **T** | **W** | **TR** | **F** | **S** | **SU** | **Assignment** |
| **Umpires required** | 1 | 2 | 3 | 0 | 2 | 2 | 0 | Umpire 3:  M,T,W |

MTW:6; TWTR: ; WTRF:4; TRFS:4; FSSU:4;SSUM:4; SUMTW:3

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | **M** | **T** | **W** | **TR** | **F** | **S** | **SU** | **Assignment** |
| **Umpires required** | 0 | 1 | 2 | 0 | 2 | 2 | 0 | Umpire 4:  F,S |

MTW:3; TWTR:3 ; WTRF:4; TRFS:4; FSSU:4;SSUM:2; SUMT:1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | **M** | **T** | **W** | **TR** | **F** | **S** | **SU** | **Assignment** |
| **Umpires required** | 0 | 1 | 2 | 0 | 1 | 1 | 0 | Umpire 5: T,W |

MTW:3; TWTR:3 ; WTRF:3; TRFS:2; FSSU:2;SSUM:1; SUMT:1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | **M** | **T** | **W** | **TR** | **F** | **S** | **SU** | **Assignment** |
| **Umpires required** | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Umpire 6: W,F,S |

Final Schedule:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | **M** | **T** | **W** | **TR** | **F** | **S** | **SU** | **Total** |
| **Requirements** | 1 | 2 | 3 | 1 | 4 | 4 | 1 | 16 |
| **Umpire 1** |  |  |  |  | X | X | X |  |
| **Umpire 2** |  |  |  | X | X | X |  |  |
| **Umpire 3** | X | X | X |  |  |  |  |  |
| **Umpire 4** |  |  |  |  | X | X |  |  |
| **Umpire 5** |  | X | X |  |  |  |  |  |
| **Umpire 6** |  |  | X |  | X | X |  |  |
| **Capacity** | 1 | 2 | 3 | 1 | 4 | 4 | 1 | 16 |

2. Can you think of other situations where workforce scheduling can be applied in your life?

Workforce scheduling can be applied to setting teaching schedules for college classes. For a typical week during a semester, classes need to be taught by faculty who would like to teach no more than two classes per day, twice a week.