

Solution 1:

Classes that require studying:

(We assume that each class session covers 1 topic for simplicity's sake)

Physics 151

Class sessions: MWF 11:15 AM - 12:05 PM | Topics covered per week: ~ **3 topics per week**

Engineering 113

Class sessions: TTh 11:30 AM - 12:45 PM | Topics covered per week: ~ **2 topics per week**

Mathematics 131

Class sessions: TTh 8:30 AM - 9:45 AM | Topics covered per week: ~ **2 topics per week**

Total of 7 topics

Classes that do not require studying

First Year Seminar Engineering 191 | Class sessions: Th 4:00 - 4:50 PM

ECE 150 Making Better Decisions by Humans and AI | Class sessions: TTh 5:30 - 6:45 PM

Non-Class Activities

Art Club | Th 7:00 - 8:00 PM

Robotics Club | W 6:00 - 7:00 PM

Speech Therapy | W 3:30 - 4:15 PM

Therapy | F 4:00 - 5:00 PM

Leaving UMass for the weekend | F 5:00 PM - rest of day

Sleep/recreational period (8 hours per day) | MTWThF 11:30 PM - 7:30 AM

Breakfast-lunch-dinner period (1.5 hours per day) | Varying, no dinner period on Friday

Free Time Calculations

M 8:00 - 11:00AM | 1:00 - 2:30PM | 5:30 - 11:30 PM | Total time: 10.5 hours

T 10:00 - 11:30 AM | 1:30 - 5:15 PM | 7:45 - 11:30 PM | Total time: 9 hours

W 8:00 - 11:00AM | 12:45 - 3:15PM | 4:30 - 5:30 PM | 8:00 - 11:30 PM | Total time: 10 hours

Th 10:00 - 11:30 AM | 1:30 - 3:45 PM | 9:00 - 11:30 PM | Total time: 6.5 hours

F 8:00 - 11:00 AM | 1:00 - 2:30 PM | Total time: 4.5 hours

Total: 40.5 hours - 10 HW hours = 30.5 hours ~ 31 hours

Adjustments To Design Specifications

The schedule may be broken into 15-minute blocks, but a minimum study session is 30 minutes to prevent excessively short study sessions, which would also be shorter than setup time. Reservation of 2 hours per day for homework, to be redistributed if no homework comes up. The most important classes are studied first and last.

Proportionality Calculations:

Physics 151 | $3/7 \times 31 = 13.28$ hours ~ 13.5 | Split into two 6.75-hour periods

Mathematics 131 | $2/7 \times 31 = 8.9$ hours ~ 9 | Split into two 4.5-hour periods

Engineering 113 | $2/7 \times 31 = 8.9$ hours ~ 9 | Split into two 4.5-hour periods

Assigning Study Periods:

Physics 151 Studying Period 1

M 8:00 - 11:00 AM | 1:00 - 2:30 PM | 7:30 - 9:45 PM | = 6.75 hours

Engineering 113 Studying Period 1

M 9:45 - 11:30 PM | T 10:00 - 11:30 AM | 1:30 - 2:45 PM | = 4.5 hours

Mathematics 131 Studying Period 1

T 2:45 - 5:15 PM | 9:45 - 11:30 PM | W 8:00 - 8:15 AM | = 4.5 hours

Engineering 113 Studying Period 2

W 8:15 - 11:00 AM | 12:45 - 2:30 PM | = 4.5 hours

Mathematics 131 Studying Period 2

W 2:30 - 3:15 PM | 4:30 - 5:30 PM | 10:00 - 11:30 PM | Th 10:00 - 11:15 AM | = 4.5 hours

Physics 151 Studying Period 2

Th 11:15 - 11:30 AM | Th 1:30 - 3:45 PM | 10:00 - 11:30 PM | F 8:00 - 10:30 AM | = 6 hours