Ayush Aryal (GTA)
- M, W: 12:00 - 1:30 pm
  - Covell 140
  - aryalae.oregonstate.edu

Daniel Stoddard (UGTA)
- W, F: 1:00 - 2:30 pm
  - Covell 140
  - stoddard@oregonstate.edu
FIGURE 1.1 Manufacturing Planning and Control System (simplified)

Resource planning → Production planning → Demand management

Rough-cut capacity planning

Master production scheduling

Detailed capacity planning → Detailed material planning

Material and capacity plans

Capacity requirements planning (ERP)

Vendor systems

Shop-floor systems

Firm production sequencing and scheduling

Inventory control

MRP → Material Requirements Planning

Firm production

MRP I/II

Manufacturing Resource Planning

APP/AR

Aggregate Production Planning
How many do we need to produce/purchase?

Forecasting

\[ x_1, x_2, \ldots, x_n \rightarrow n \text{ products} \]

\[ \begin{align*}
DVC_1 & \quad DVC_2 & \quad DVC_3 & \quad DVC_4 \\
\downarrow & \quad \downarrow & \quad \downarrow & \quad \downarrow \\
\text{Digital Video camera} & \quad \text{(raw materials (RMs), parts/components, subassemblies, final assembly)}
\end{align*} \]

70-80% of items are the same

Plan for aggregate production

\[ x_t \rightarrow \text{surrogate product} \]

one that is representative of the family

\[ f = 1, 2, \ldots, m \rightarrow m \text{ families of products} \]

\[ R_{ft} \rightarrow \text{production in hrs. of product} \]

\[ \text{family } f \text{ scheduled in month } t \]

\[ t = 1, 2, \ldots, 6 \]
The parameters/variables involved with this exercise (APP/AP) are: inventory, # of employees hired/laid off, regular time, # over time.

What do we find?
- Production hrs. allocated to each product family.
- This is APP/AP
- Aggregate
  - Aggregate Planning
  - Master Production Schedule
  - MPS
  - Time unit in units # of weeks
  - For individual products (end items) in each family
  - How many and when do we need in individual products?
Resource Planning → Rough-cut Planning

Comes in as a "checker"
Scalyn at the assembly level

Two types of resources
- Machine
- Labor Hrs
- M/C Hrs

Do we have enough Hrs.
To support production (only at the assy. level)?

MPS

Detailed material plan
Do we have the material?

MRP (Material Requirements Planning)

Detailed capacity plan
Do we have the capacity?

CRP (Capacity Requirements Planning)
We may run into material problems, capacity problems, or both!!

get do a feasible schedule.

Firm production.