Industrial Planning and Scheduling

My Checklist. Each project a little different but with the main headers as shown.

1. SITE PLANNING
    - Vessels
        i. Columns
        ii. Tanks
        iii. Cooling Tower
    - Hazards Review and placements
2. FOUNDATION PLAN
    - Borings
    - Foundation recommendations
    - Deep foundations
3. ROADWAYS
4. UNDERGROUND UTILITIES
    - Water
    - Fire protection
    - Pipe lines
5. ABOVE GROUND UTILITIES
6. TANK FARMS
7. COOLERS/HEATER
8. REFRIGERATION SYSTEMS
9. REFORMERS
10. ECONOMIZERS
11. FIRE SUPPRESSION/ FIRE PROOFING SYSTEMS
12. COOLING TOWERS
13. UTILITIES IN PIPE RACKS
14. PROCESS LINES IN PIPE RACKS
15. PIPE RACKS
16. PROCESS DESIGN/OPERATIONS PROCEDURES
17. MAINTENANCE PROCEDURES
18. PIPE ISO SYSTEMS
19. INSTRUMENTATION SYSTEMS
20. POWER SYSTEMS
21. CONVEYING SYSTEMS
22. DRYERS
23. SCHEDULING & PLANNING
24. LONG TERM DELIVERY ITEMS
25. LIGHTING
26. EMERGENCY ALARM SYSTEM
27. FUGITIVE EMISSION MONITORING SYSTEM

1. SITE PLANNING
    - Titles
    - Contaminants
    - Archeological study
    - Soil testing/samples, 30 to 170+ feet depth
    - Conceptual setting plan based on equipment layout
        i. Hazards reviews, equipment spacing and setting
    - Roadway conceptual
    - Site Drainage
        i. Storm water
        ii. Retention
        iii. Detention
        iv. Monitoring
    - Underground utilities
        i. Fire Suppression water
            1. Thrust design
            2. Fire monitors
            3. Deluge systems
            4. Isolation valves
        ii. Pipe Lines
            1. Cathode and Anode
        iii. Well Water
2. FOUNDATION PLAN
    - Geotechnical Reports and recommended piles, drill piers, pile caps etc.
    - Tanks
        i. Size
        ii. Weight
        iii. Wind loading
    - Columns
        i. Weight
        ii. Wind loading
        iii. Deep foundations
    - Pumps
        i. Mechanical pads
        ii. Vibration
        iii. Weight
    - Cooling Tower
        i. Size
        ii. Pumps
        iii. Sumps
        iv. Weight
    - Transformer pads
    - Light poles

- Structure
- Pipe Racks
- Control Room
- MCC Room
- Compressors
- Other equipment, too many to list here; all are dependent upon the project type; there are literally thousands of different types of equipment. Other equipment could include: Cat Crackers, Large storage, Cold Boxes, Expanders, Reformers, Cryogenic Storage, Centrifuges, etc; an innumerable list.

3. ROADWAYS
    - Designed to interstate specifications due to heavy traffic in turn-around, etc. with wide shoulders both sides of each road. Heavy 18 wheeler, forklift and
4. UNDERGROUND UTILITIES
    - Water
    - Fire suppression water
    - Pipe lines
    - Refrigerant lines
5. ABOVE GROUND UTILTIES
    - Steam
    - Water
    - Air
    - Nitrogen
    - Instrument air
6. TANK FARMS
    - Day tanks
    - Batch tanks
    - Raw material tanks
7. COOLERS/HEATERS
8. REFRIGERATION SYSTEMS
    - Process coolers and chillers
9. FIRE SUPPRESSION/FIRE PROOFING SYSTEMS
    - Internal deluge system
        - Bins
        - Columns
        - Tanks
    - Sprinkler systems
        - At and around columns
        - At decks
    - Fire monitors
    - Suppression in MCC
    - Suppression in Control Rooms
    - Structural fire proofing

10. COOLING TOWERS
    - Sumps
    - Foundation
    - Structure
    - Piles
    - Chemical additive pads
    - Chemical additive tanks
    - Chemical additive pumps
    - Cooling tower structure
    - Cooling tower fans
    - Power to pumps
    - Power to fans
    - Power at chemical additive tanks
    - Lights
11. UTILITIES IN PIPE RACKS
12. PROCESS LINES IN PIPE RACKS
13. PIPE RACKS
    - Structure design
    - Bridges and clearances over roadways
    - Loading
    - Future additional loading
14. PROCESS DESIGN/OPERATIONS PROCEDURES
15. MAINTENANCE PROCEDURES
16. PIPE ISO SYSTEMS
    - Utilities
        i. Water
        ii. Air
    - Process
17. INSTRUMENTATION SYSTEMS
    - Level
    - Flow
    - Temperature
    - Nuclear
    - Delta pressure

18. POWER SYSTEMS
    - Incoming power supply requirements
        i. High voltage
        ii. Transformers
        iii. Switches
        iv. 3 phase
        v. 600v
        vi. 440v
        vii. 120v
        viii. DCV systems

- MCC room
- Control Room
- Field switches
- Emergency power backup
- Grounding

19. SCHEDULING & PLANNING
    - Site plan
    - Site work
    - Foundations (Piles or piers) and pile caps
    - Underground utilities
    - Pipe racks
    - Multi-level structures packages
        i. Structure
        ii. Stairwells, fixed
        iii. Ladders, fixed caged, etc.
        iv. Platforms
        v. Decking
        vi. Handrails, fixed, angular, etc.
    - Electrical
    - Instrumentation
    - Mechanical
    - Pipe fitting
    - Boiler makers
    - Welders
    - Long term deliveries
        i. Reactors
        ii. Pumps
        iii. Columns
        iv. Tanks
        v. Scrubbers
        vi. Flares
        vii. Hot oil heaters
        viii. Incinerators
        ix. Boilers
        x. Special equipment
        xi. Multiple ISOs
        xii. Instrumentation
20. LONG TERM DELIVERY ITEMS
    - Tanks
        i. Nozzles
        ii. Ladders
        iii. Platforms
        iv. Man-ways
        v. Agitators
        vi. Baffles

vii. Vortex breakers
viii. Weld Procedure
ix. NDE/NDT
x. Stress relief
xi. PWHT
xii. Pre-Heat
xiii. Corrosion allowances

- Columns
  i. Pressure rating
  ii. Nozzles
  iii. Man-ways
  iv. Decking
  v. Ladders
  vi. Platforms
  vii. Trays
  viii. Packing
  ix. Inner coolers/condensers
  x. Reboilers
  xi. Coolers
  xii. Condensers
  xiii. PSVs
  xiv. Vacuum systems
  xv. Motive vapor jet systems
  xvi. Stress relief
  xvii. Materials of Construction
  xviii. Weld Procedure
  xix. PWHT
  xx. NDE/NDT
  xxi. Corrosion allowances
- Reactors
  i. Pressure rating
  ii. Nozzles
  iii. May-ways
  iv. Platforms
  v. Ladders
  vi. Decking
  vii. Agitators
  viii. Baffles
  ix. Vortex breakers
  x. Cooling or heating jackets
  xi. Name plates
  xii. Support legs
  xiii. Support cradles
  xiv. Re-pads
  xv. Spargers
  xvi. Materials Of Construction

1. Stainless steel
2. Glass lined
3. Hastelloy
4. Inconel
5. Monel
6. Incolloy
7. Carbon steel, SMLS, BE Etc.
8. All the carbon classes
9. Chrome

- Pipe isos
- W

21. LIGHTING
22. EMERGENCY ALARM SYSTEM
23. FUGITIVE EMISSION MONITORING SYSTEM
24. WASTE WATER SYSTEMS
25. RAIL SYSTEMS