Information Technology

FIT2002
IT Project Management

November, 2020

Seminar 12

Unit Summary & Exam Review

Unit Schedule

Week	Activities	Assessment
0	Watch FIT2002 Introduction video and week 1 pre-class video	No formal assessment or activities are undertaken in week 0
1	Introduction to the unit; Introduction to project management	Pre-class activity and online quizzes due every Monday 11pm (from Week 2 to 11)
2	Project/product lifecycles and organisational structures	
3	Project integration management	Assignment 1: Running Case 1 handed out
4	Project scope management	Assignment 1: Running Case 2 handed out
5	Project schedule management	Assignment 1: Running Case 3 handed out
6	Project cost management	Assignment 1: Running Case 4 handed out
7	Project risk management	Assignment 1 due Friday 18 Dec 2020 5pm
Semester Break (21 December 2020 – 3 Jan 2021)		
8	Project quality and procurement management	Assignment 2: Running Case 5 handed out
9	Project communication and stakeholder management	Assignment 2: Running Case 6 handed out
10	Project resource management	Assignment 2: Running Case 7 handed out
11	Project Management Process Group and Agile vs Predictive Approach	Assignment 2 due Friday 29 Jan 2021 11pm
12	Wrap up	Oral presentation during Week 12 tutorial

Lecture 1 – Introduction to Project Management

- Explain what a project is, list various attributes of projects, and describe the triple constraint of project management

  - A project is a temporary endeavor undertaken to create a unique product, service, or result

- Describe project management and discuss key elements of the project management framework, including project stakeholders, the project management knowledge areas, common tools and techniques, and project success

- Discuss the relationship between project, program, and portfolio management and the contributions each makes to enterprise success

  - Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements

  - A program is a group of related projects managed in a coordinated way

  - Project portfolio management involves organizing and managing projects and programs as a portfolio of investments

- Project managers play a key role in helping projects and organizations succeed

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Lecture 2 – Organisational structures and Project and Product Lifecycles

- Project managers need to take a systems approach in order to successfully manage projects - to consider projects within the greater organisational context.

- To ensure project success, IT project managers need to integrate business and organisational issues as well as technology into project planning.

- Organisations have four different frames – structural, human resource, political and symbolic frame. Project managers need to understand all of these aspects of organisations to be successful.

- The three basic organisational structures: functional, matrix, and project.

  – Project managers have the most authority in a pure project organisation, an intermediate amount of authority in a matrix organisation, and the least amount of authority in a pure functional organisation.

- Organisational culture also affects project management. Projects are more likely to succeed in certain culture especially where there's a balance among the dimensions of people focus, control and means orientation.

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Lecture 2 (cont..)

- Project managers must identify and understand the different needs of all stakeholders involved with their projects.

- Top management commitment is crucial for project success.

- Proper IT governance and development standards and guidelines assist most organisations in managing projects.

- A project life cycle is a collection of phases. Traditional project phases include concept, development, implementation, and close-out.

  - A project should successfully pass through each project phase in order to continue to the next phase.

- Systems development projects can use predictive or adaptive software development models (ASD).

- Examples of Predictive life cycle : the waterfall, spiral, incremental build, prototyping and RAD

- Some examples of ASD include extreme programming, feature driven development, dynamic systems development model, and scrum.

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Lecture 3 – Project Integration Management

▪ Project integration management involves coordinating all of the other project management knowledge areas throughout a project's life cycle.

▪ Project integration management includes 6 processes:

1. Developing the project charter
2. Developing the project management plan
3. Directing and managing project work
4. Monitoring and controlling project work
5. Performing integrated change control
6. Closing the project or phase

▪ Common techniques for selecting projects:

– broad organisational needs – need, funds and will
– categorising projects – project's impetus, time window, overall priority
– performing financial analyses – NPV, ROI, Payback
– developing weighted scoring models, and
– using balanced scorecards.

6. Closing Project or Phase
5. Perform Integrated Change Control
4. Monitor & Control Project Work
3. Direct & Manage Project Work
2. Develop Project Management Plan
1. Develop Project Charter

Lecture 4 - Project Scope Management

- Project scope management includes the processes to ensure that the project addresses all the work required to complete the project successfully.

Planning
Process: **Plan scope management**
Outputs: Scope management plan, requirements management plan
Process: **Collect requirements**
Outputs: Requirements documentation, requirements traceability matrix
Process: **Define scope**
Outputs: Project scope statement, project documents updates
Process: **Create WBS**
Outputs: Scope baseline, project documents updates

Monitoring and Controlling
Process: **Validate scope**
Outputs: Accepted deliverables, change requests, work performance information, project documents updates

Process: **Control scope**
Outputs: Work performance information, change requests, project management plan updates, project documents updates, organizational process assets updates

Project Start   **Project Finish**

The six main processes of scope management

Lecture 5 - Project Schedule Management

- Project time management involves planning the schedule, defining and sequencing activities, estimating activity resources and durations and finally developing the schedule and controlling the schedule throughout the life of the project

The seven main processes of time management

Planning

Process: **Plan schedule management**
Outputs: Schedule management plan

Process: **Define activities**
Outputs: Activity list, activity attributes, milestone list, project management plan updates

Process: **Sequence activities**
Outputs: Project schedule network diagrams, project documents updates

Process: **Estimate activity resources**
Outputs: Activity resource requirements, resource breakdown structure, project documents updates

Process: **Estimate activity durations**
Outputs: Activity duration estimates, project documents updates

Process: **Develop schedule**
Outputs: Schedule baseline, project schedule, schedule data, project calendars, project management plan updates, project documents updates

Monitoring and Controlling
Process: **Control schedule**
Outputs: Work performance information, schedule forecasts, change requests, project management plan updates, project documents updates, organizational process assets updates

Project Start　　　　　　　　　　　　　　　　　　　　**Project Finish**

Lecture 6 - Project Cost Management

- Planning cost management involves determining the policies, procedures, and documentation used for planning, executing, and controlling project cost.

- Types of cost estimates: rough order of magnitude, budgetary and definitive.

- Tools and techniques to develop cost estimates - analogous estimating, bottom-up estimating, parametric estimating, and computerized tools.

- Determining the budget involves allocating costs to individual work items over time.

- Controlling costs includes monitoring cost performance, reviewing changes, and notifying project stakeholders of changes related to costs.

  - Earned value management is an important method used for measuring project performance.

The four main processes of cost management

Planning
Process: **Plan cost management**
Outputs: Cost management plan
Process: **Estimate costs**
Outputs: Activity cost estimates, basis of estimates, project documents updates
Process: **Determine budget**
Outputs: Cost baseline, project funding requirements, project documents updates

Monitoring and Controlling
Process: **Control costs**
Outputs: Work performance information, cost forecasts, change requests, project management plan updates, project documents updates, organizational process assets updates

Project Start   **Project Finish**

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Lecture 7 - Project Risk Management

▪ Project risk management is a process in which the project team continually assesses what risks may negatively or positively affect the project, determines the probability of such events occurring, and determines the impact if such events occur.

▪ Risk management also involves analysing and determining alternate strategies to deal with risks.

> **The six main processes of risk management**

Planning
Process: **Plan risk management**
Outputs: Risk management plan
Process: **Identify risks**
Outputs: Risk register
Process: **Perform qualitative risk analysis**
Outputs: Project documents updates
Process: **Perform quantitative risk analysis**
Outputs: Project documents updates
Process: **Plan risk responses**
Outputs: Project management plan updates, project documents updates

Monitoring and Controlling
Process: **Control risks**
Outputs: Work performance information, change requests, project management plan updates, project documents updates, organizational process assets updates

Project Start   **Project Finish**

Lecture 7 (cont..)

- Contingency plans are predefined actions that a project team will take if an identified risk event occurs.

- Fallback plans are developed for risks that have a high impact on meeting project objectives, and are implemented if attempts to reduce the risk are not effective.

- Contingency reserves are provisions held by the project sponsor or organization to reduce the risk of cost or schedule overruns to an acceptable level.

- Tools for qualitative risk analysis include a probability/impact matrix and the Top Ten Risk Item Tracking technique.

- Tools for quantitative risk analysis include decision trees (using EMV) and Monte Carlo simulation.

- The four basic responses to negative risks are avoidance, acceptance, transference, and mitigation.

- The four basic response strategies for positive risks are risk exploitation, risk sharing, risk enhancement, and risk acceptance.

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Lecture 8 - Project Quality & Procurement Management

- Planning quality management identifies which quality standards are relevant to the project and how to satisfy them.

- Performing quality assurance involves evaluating overall project performance to ensure that the project will satisfy the relevant quality standards.

- Controlling quality includes monitoring specific project results to ensure that they comply with quality standards and identifying ways to improve overall quality.

The three main processes of quality management

Planning
Process: **Plan quality management**
Outputs: Quality management plan, process improvement plan, quality metrics, quality checklists, and project documents updates

Executing
Process: **Perform quality assurance**
Outputs: Change requests, project management plan updates, project documents updates, and organizational process asset updates

Monitoring and Controlling
Process: **Perform quality control**
Outputs: Quality control measurements, validated changes, validated deliverables, work performance information, change requests, project management plan updates, project documents updates, and organizational process asset updates

Project Start   **Project Finish**
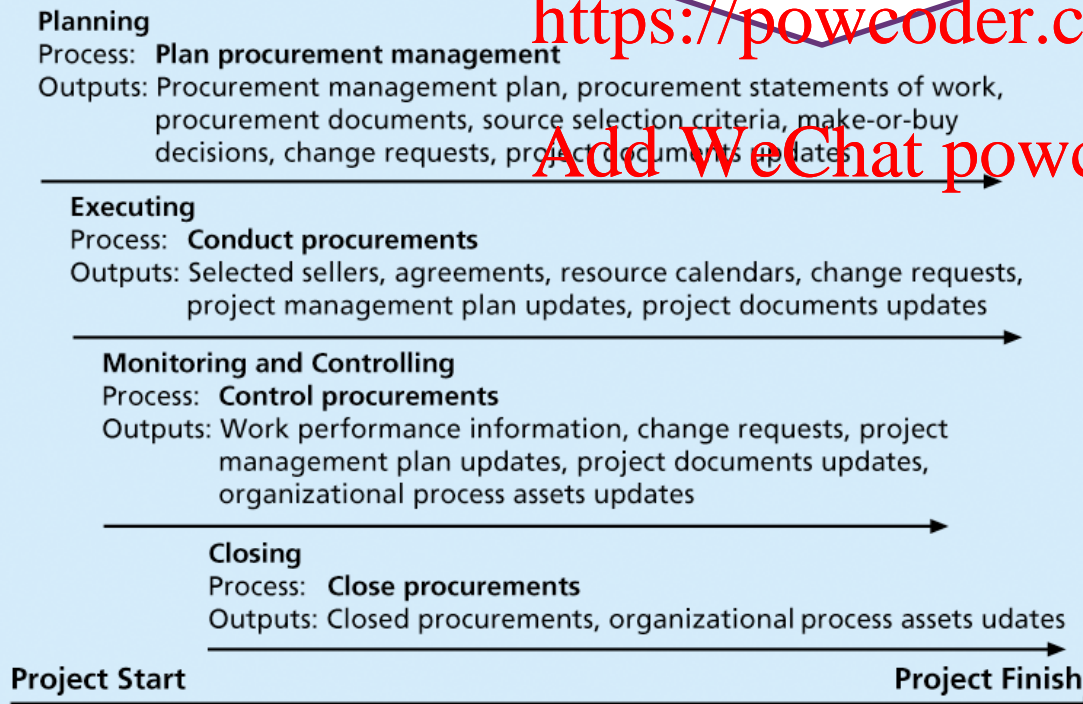
Lecture 8 (cont..)

- Planning procurement management involves deciding what to procure or outsource, what type of contract to use, and how to describe the effort in a statement of work.

- Types of contract - Fixed-price contracts, Cost-reimbursable contracts, Time and material contracts.

- Make-or-buy analysis, statement of work (SOW), Request for proposal (RFP) and Request for Quote (RFQ)

- Conducting procurements involves obtaining seller responses, selecting sellers, and awarding contracts.
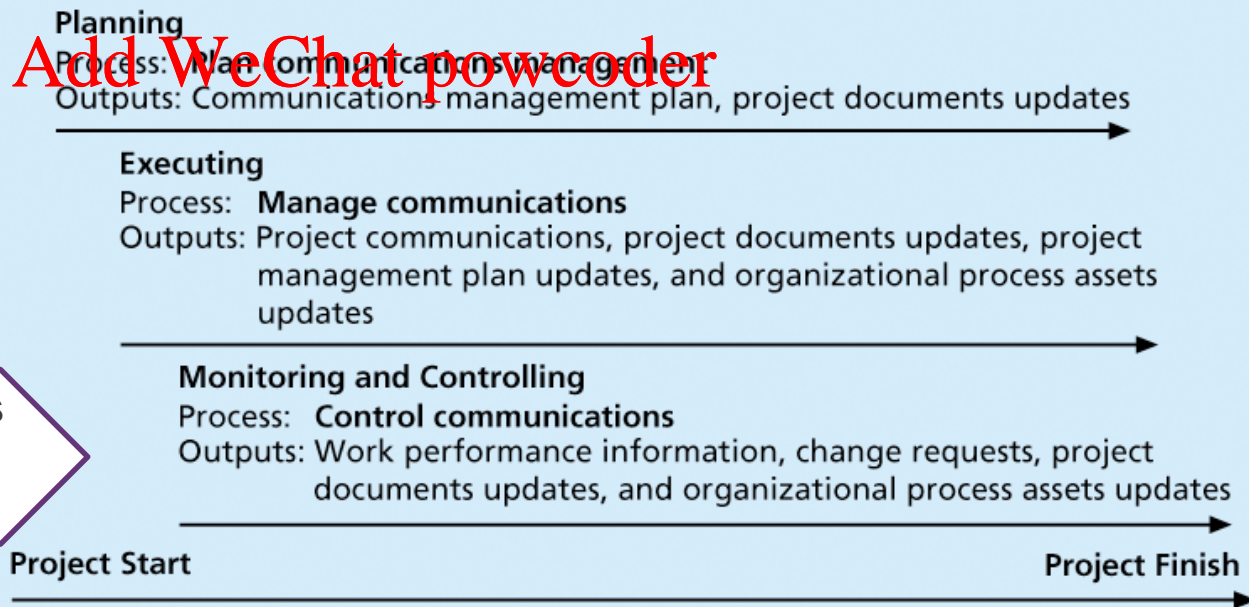
- Controlling procurements involves managing relationships with sellers, monitoring contract performance, and making changes as needed.

- Closing procurements involves completion and settlement of each contract, including resolution of any open items.

The four main processes of procurement management

Planning
Process: **Plan procurement management**
Outputs: Procurement management plan, procurement statements of work, procurement documents, source selection criteria, make-or-buy decisions, change requests, project documents updates

Executing
Process: **Conduct procurements**
Outputs: Selected sellers, agreements, resource calendars, change requests, project management plan updates, project documents updates

Monitoring and Controlling
Process: **Control procurements**
Outputs: Work performance information, change requests, project management plan updates, project documents updates, organizational process assets updates

Closing
Process: **Close procurements**
Outputs: Closed procurements, organizational process assets udates

Project Start → **Project Finish**

Lecture 9 - Project Communication & Stakeholder Management

- Keys to good communications: focusing on individual and group communication needs, using formal and informal communication methods, providing important information effectively and timely, setting the stage right for bad news, and understanding communication channels.

- Managing communication includes creating and distributing project information - important to determine the most appropriate means for distributing information.

Planning
Process: Plan communications management
Outputs: Communications management plan, project documents updates

Executing
Process: **Manage communications**
Outputs: Project communications, project documents updates, project management plan updates, and organizational process assets updates

Monitoring and Controlling
Process: **Control communications**
Outputs: Work performance information, change requests, project documents updates, and organizational process assets updates

Project Start   **Project Finish**

The three main processes of communication management

Lecture 9 (cont..)

- When managing stakeholder engagement, project managers and teams must understand various stakeholders' expectations and use their communications and interpersonal skills.

- A **stakeholder analysis** is a key technique used in planning stakeholder engagement.

The four main processes of stakeholder management

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Initiating
Process: **Identify stakeholders**
Outputs: Stakeholder register

Planning
Process: **Plan stakeholder management**
Outputs: Stakeholder management plan, project documents updates

Executing
Process: **Manage stakeholder engagement**
Outputs: Issue log, change requests, project management plan updates, project documents updates, organizational process assets updates

Monitoring and Controlling
Process: **Control stakeholder engagement**
Outputs: Work performance information, change requests, project documents updates, organizational process assets updates

Project Start   **Project Finish**

- **Stakeholder register** – Stakeholders can be internal or external to the organization, and they might support or oppose your project

- **Stakeholder management plan** – describes stakeholder engagement levels, inter-relationships, communication requirements, management strategies, and a process for updating the plan.

- **Issue log** – a document used to help track and resolve issues on projects.

Lecture 10 Part 1: Project Resource Management

▪ People are the most important assets in organizations and on projects. Therefore, it is essential for project managers to be good human resource managers.

▪ **Herzberg** (**motivators** and **hygiene factors**); **McGregor** (Theory X and Y)

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Planning
Process: **Plan human resource management**
Output: Human resource plan

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Executing
Process: **Acquire project team**
Outputs: Project staff assignments, resource calendars, project management plan updates

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Process: **Develop project team**
Outputs: Team performance assessments, enterprise environmental factors updates

Monitoring and Controlling
Process: **Manage project team**
Outputs: Change requests, project management plan updates, project documents updates, enterprise environmental factors updates, and organizational process assets updates

Project Start   **Project Finish**

The four main processes of human resource management

Lecture 10 (Part 2) - Project Monitoring & Controlling

▪ Earned Value Management (EVM) – a technique used to help determine and manage **project progress**

▪ It evaluates **the magnitude of any variations** from the planned values concerning **cost**, **schedule**, and **performance**

▪ It helps the project team and stakeholders gain a **better understanding** of just **how the project is performing**

Earned Value Formula

Planned Value = PV (or BCWS) = (Planned % Complete) x (Project Budget)
Actual Cost = AC (or ACWP)
Earned value = EV (or BCWP) = (Actual % complete) x (Project Budget)
Cost Variance (CV): $CV = EV - AC$
Cost Performance Index (CPI): $CPI = EV/AC$
Schedule Variance (SV): $SV = EV - PV$
Schedule Performance Index (SPI): $SPI = EV/PV$
Budget at Completion = BAC
Estimate to Complete (ETC): $ETC = (BAC - EV)/CPI$
Estimate at Completion (EAC): $EAC = AC + ETC$

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Lecture 11 – Project Management Process Group and Agile Approach

▪ The five project management process groups are initiating, planning, executing, monitoring and controlling, and closing.

Ideas

Project Charter

Delivery/ Handover

Final acceptance

Concept   **Phase 1…**   **Phase n…**   **Close-out/ Delivery**

Initiation/ Concept Phase

Intermediate Phases

Final Phase

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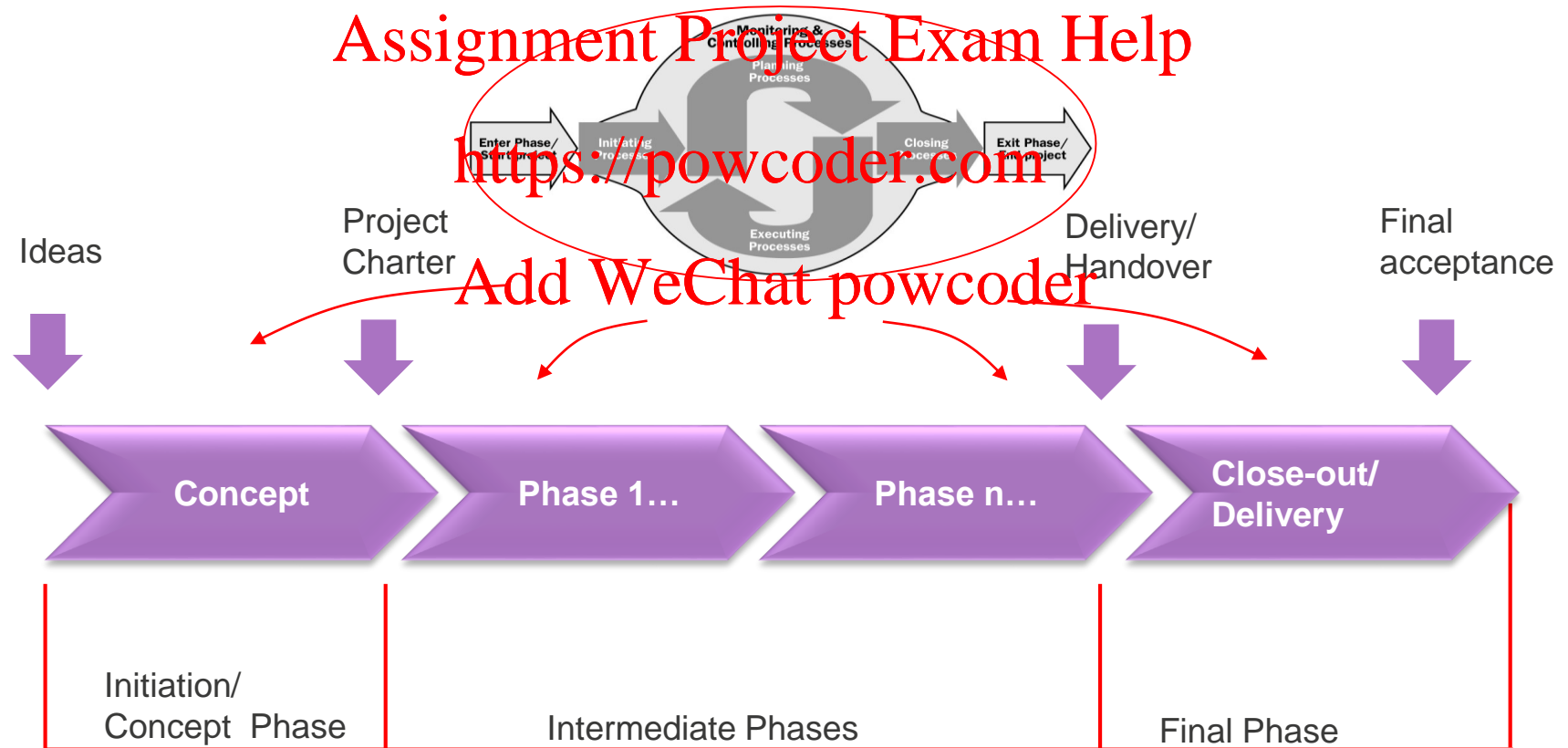
Lecture 11 (cont..) – Agile Approach

- **Scrum Roles** – product owner, Scrum Master, Scrum team or development team

- **Scrum Artefacts** include: Product backlog, Sprint backlog, Burndown chart

- **Scrum Ceremonies** - Sprint planning session, Daily Scrum, Sprint review, Sprint retrospectives
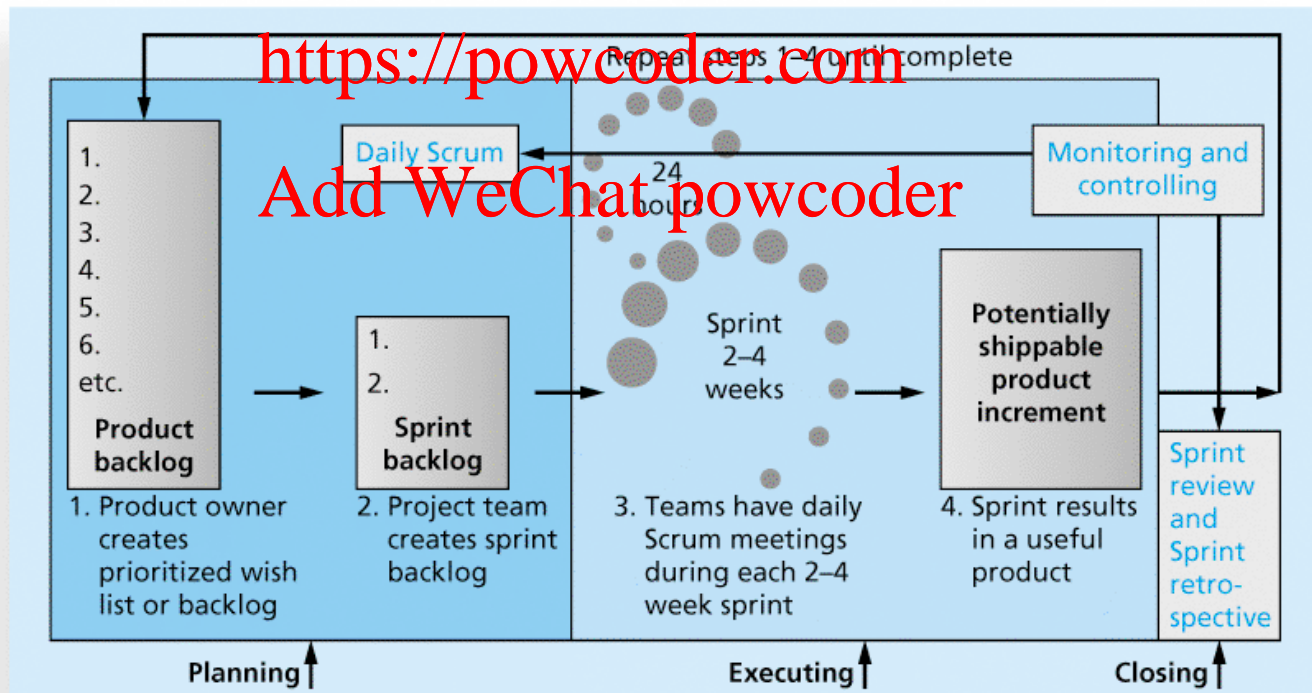
Exam Preparation: Format of the Exam

- **The exam is 2 hours 10 mins and contributes to 50% of the unit assessment**

- It will consist of FOUR (4) parts.

Part A: 20 multiple choice questions worth 1 mark each.		20 marks
Part B: 5 short answer questions worth 2 marks each.		10 marks
Part C: Case Study with 3 sub-parts		15 marks
Part D: Calculation - 4 questions with sub-parts		35 marks
Total		**80 marks**

- Refer to the Mock eExam (link provided in Moodle).

Part A: Multiple Choice Questions

- There will be 20 multiple choice questions each worth 1 mark.

- No "filling in the blanks" questions.

- About 2 ~ 3 questions from each lecture.

- Best way to prepare for this is to attempt the online quizzes which would be made available on Moodle shortly (for unlimited attempts).

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Part B: Short Answer Questions

- There will be 5 short answer questions each worth 2 marks.

- This can come from any lecture (Lecture 1 – 11).

- Would be good to go through your tutorial questions

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Part C – Case Study

- There will be 3 sub-parts totalling 15 marks.

  - You will be given a scenario
  - What you've done in assignment would help
  - Possible topics/questions:

    - Requirements traceability matrix
    - Stakeholder register and/or analysis
    - Communication management plan
    - Risk management – Risk register
    - Issue log
    - Other concepts covered in the unit

Part D - Calculation

- Topic: Earned value management (8 marks)
  - Be able to:
    - Calculate the Cost Variance, Schedule Variance, Cost Performance Index and Schedule Performance Index for a project.
    - Interpret the results.
  - Refer to Week 6 & 10 materials to prepare for this
  - Formula is given (as shown in mock exam paper)

Part D – Calculation

- Network diagram worth 12 marks

  - Topic: Project time management (week 5 materials)
  - Be able to:

    - Draw a project network diagram using the activity on node method.

    - Perform calculations (estimated time and floats for each activity) on the project network.

    - Identify the critical path.

    - Identify the impact of a delay of any activity on the project duration.

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Section D – Calculation

- <u>Project compression (worth 15 marks)</u>

  – Topic: Project time management
  – Refer: Project crashing video in Week 5, Seminar 9, Tutorial 6 & extra exercise.
  – Be able to perform network compression (refer to next slide).
  – Templates will be given in the exam

Steps to perform network compression:

1. Draw an all-normal network diagram, and find out the critical path.

2. Pay a close attention to "network limitation", and find out which activities are not to be compressed then cross these activities out.

3. Start to compress the activity in critical path by the number of days until the next chain become critical. And calculate the increase in project cost.

4. If a second critical path develops then we must compress each chain by an equal amount to achieve compression. If there were three critical paths then we would have to compress each of the three chains by the same amount to achieve a certain compression. Then again repeat the network calculation and that cost increase.

5. Repeat step 4 until full crash of the project.

6. Prepare a quotation to compress the project to the certain required duration. And calculate the activity duration.

7. Calculate the minimum target selling price based on the following formula:

   Total build cost = Normal project cost + Extra cost to achieve the required duration
   Target selling price = (1 + margin) x Total build cost

Faculty Policy - Unit Assessment Hurdles Policy

To pass a unit which includes an examination as part of the assessment a student must obtain:
- an overall unit mark of 50% or more, and
- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is:
- greater than or equal to 50% then a mark of 45-N will be recorded
- less than 50% then the actual mark for the unit will be recorded.

- Suggestions for exam preparation: All video recording, all seminars and tutorials.
- See mock eExam – link provided in Moodle
- Check exam consultation times

Pre-Exam Consultation

Date:	Time:	Zoom link:
Tue 9-Feb	2pm – 3pm	https://monash.zoom.us/j/93737387165?pwd=Vy5i4MzI2ctUtOU9kWFFxeFowdVlFUT09
Wed 10-Feb	12pm – 1pm	https://monash.zoom.us/j/81742885396?pwd=OWFOdkZ3cHRRjJYSHRDbTZGMlladz09
Thu 11-Feb	2pm – 3pm	https://monash.zoom.us/j/98633923616?pwd=C1Ub4Z09KbzkwNEtURTZjNjlvRWx0QT09
Fri 12-Feb	10am – 11am	https://monash.zoom.us/j/93470179155?pwd=b0VSWEJRZDIKT3U4WTVGdEZENTFyZz09

- Please refer to Moodle for the most updated schedule.

- Please feel free to email Mary (poh.lim@monash.edu) if you can't make it for the above consultation or post your question on the Ed discussion forum.

Revision Session

Date & Time: Tue 9 Feb10am – 12pm

Zoom link: same as the seminar zoom link

- Revision – NPV, EVM, Project compression

- Please email (pohlim@monash.edu) if you have any particular topics that you would like to go through

- Zoom session will be recorded

Good Luck!!

Please hop on this link to do an evaluation:

- **SETU can be accessed through the Moodle block (http://moodle.vle.monash.edu/my/) listed under the units section in Moodle.**

- **SETU can be accessed directly through the SETU survey landing page – https://monash.bluera.com/monash**