



## TEACHING PLAN: PROJECT MANAGEMENT

<b>SCHOOL:</b>		<b>ACADEMIC SESSION- 2022 - 2024</b>	<b>FOR STUDENTS' BATCH: MGTM - 401</b>		
<b>1</b>	<b>Course code</b>	<b>MGTM - 401</b>			
<b>2</b>	<b>Course Title</b>	<b>PROJECT MANAGEMENT</b>			
<b>3</b>	<b>Credits</b>	<b>4</b>			
<b>4</b>	<b>Learning Hours</b>	<b>Contact Hours</b>		<b>60</b>	
		<b>Assessment</b>		<b>20</b>	
		<b>Guided Study</b>		<b>20</b>	
		<b>Total hours</b>		<b>100</b>	
<b>5</b>	<b>Course Objective</b>	<p>. (1) The Student demonstrates leadership and teamwork skills in collaborating with other to accomplish goals and objectives</p> <p>(2) The students is expected to demonstrate responsibility for shared group and individual work tasks.</p> <p>(3) Understand the fundamentals of project life- cycle management.</p> <p>(4) Develop skills in project planning, scheduling and resource allocation.</p> <p>(5) Master communication and collaboration techniques for successful project execution.</p> <p>(6) Gain proficiency in project evaluation and performance measurement methodologies.</p> <p>1.</p>			
<b>6</b>	<b>Course Outcomes</b>	<p>1. Students will be able to understand the all aspects of project.</p> <p>2. Students will be able to understand the concept of project management.</p> <p>3. Students will get an opportunities to acquire executive thinking skills</p> <p>4. Students clearly understand the different skills that are necessary for monitoring, coordinating for the Project.</p>			
<b>7</b>	<b>Outline syllabus:</b>				
<b>7.01</b>	<b>Paper Code</b>	<b>Unit</b>	<b>Introduction</b>	<b>Reference number</b>	<b>Teaching methods</b>
<b>7.02</b>	Paper Code. MGTM – 401 Unit I	(a)	Introduction to Project Management: Concept of Project <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB1 2.2-2.7	PPT White Board +PPT
		(b)	Project Management, Project Management life cycle, Principles of Project Management  <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB 2 5 - 6	White Board +PPT
		(d)	Knowledge Area of Project Management. Role of a Project Manager  <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB1 1.13- 1.13	PPT White Board +PPT

		(e)	<p>Planning of a Project: Concept of Project Planning, Steps, Project Planning tools, Project Team Development, Project Planning Estimation, Estimation Approaches. <b>Time</b> value of money, Time Lines and Notation, Future value of a single amount, future value of an annuity,</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB1 1.14-1.19	PPT White Board +PPT
7.03	Paper Code. – M GTM – 401 , Unit – II	(a)	<p>Net Present Value, Benefit cost Ratio (or Profitability Index), Internal Rate of Return, Urgency,</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB1 5.8- 5.30	White Board + PPT
		(b)	<p>Pay back Period, Accounting Rate of Return,</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB1 5.57- 5.65	White Board + PPT
		(c)	<p>Assessment of various methods</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB1 9.2-9.8	White Board + PPT
		(d)	<p>Investment evaluation in practices.</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB1 9.12-9.15	White Board + PPT
7.04	Paper Code. – M GTM – 401 , Unit – III	(a)	<p>Sources, Measures and perspectives on Risk, Sensitivity Analysis</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB2 388-411	White Board + PPT
		(b)	<p>Scenario Analysis, Break – Even Analysis</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB2 473-486	White Board + PPT
		(c)	<p>, Hiller Model, Simulation Analysis,</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB2 436 - 472	White Board + PPT
		(d)	<p>Decision Tree Analysis</p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p>	TB2 473-486	White Board + PPT

		( e)	Managing Risk, project Selection under Risk, <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB2 506-519	White Board + PPT
		(f)	Risk analysis in practice, How Financial Institutions analysis risk <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB2 355-367	White Board + PPT
7.5	Paper Code. – M GTM – 401 , Unit – IV	(a)	Rationale for SCBA, UNIDO Approach, Net benefit in terms of economic <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB2 3-10	White Board +PPT
		(b)	, Measurement of Impact o Distribution, Saving impact and its value, Income Distribution Impact <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB2 798-802	White Board +PPT
		(c)	Adjustment for Merit and Demerits Goods, Little – mirrless approach, <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB2 803-815	White Board +PPT
		( d)	Shadow prices, SCBA by Financial Institution, Public Sector Investment Decisions in India. <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB 2 782-797	White Board +PPT
7.06	Paper Code. – M GTM – 401 , Unit – V	(a)	Development of Project Network, Time Estimation <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB1 8.46 - 8.49	White Board +PPT
		(b)	Determination of critical path <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB3 520-524	White Board +PPT
		(c)	Shadowing when resource are limited , PERT Model, CPM Model, Network Cost System <a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a>	TB 1 10.5-10.6	White Board +PPT
8	Course Evaluation				

<b>8.10</b>	<b>CA: 40%</b>	
<b>8.1</b>	<b>Attendance</b>	5%
<b>8.1.2</b>	<b>Assignment</b>	20%
<b>8.1.3</b>	<b>Theory</b>	15%
<b>8.1.4</b>	<b>Class test</b>	15%
<b>8.1.5</b>	<b>Presentation</b>	5%
<b>8.1.6</b>	<b>Any other</b>	--
<b>8.2</b>	<b>MTE(IA)</b>	20%
<b>8.3</b>	<b>End-term examination: 40%</b>	
<b>9</b>	<b>Text Books &amp; References</b>	
<b>9.1</b>	<b>Text books</b>	<p>TB1 Verzuh, Eric. The Fast Forward MBA in Project Management. Hoboken, NJ: John Wiley &amp; Sons, 2005.</p> <p>TB2 Meredith, Jack R., and Samuel J. Mantel. Project Management: A Managerial Approach. 8th ed. Hoboken, NJ: John Wiley &amp; Sons, 2012.</p> <p>TB3 Project Management Institute. A Guide to the Project Management Body of Knowledge. 4th ed. Newtown Square, PA: Project Management Institute, 2008.</p>
<b>9.2</b>	<b>References</b>	<p>R1: Project Management- K Nagrajan- New Age International Publishers</p> <p>R2. Projects- Planning, Analysis, Selection, Implementation and Review- Prasanna Chandra- Tata McGraw Hill Publications</p> <p>R3. Project Management Jump Start- Kim Heldman- Wiley Publications</p> <p>R4. Project Management- Case Studies- Harold R Kerzner</p> <p>R5. Improving your Project Management Skills- Larry Richman- Amacom</p>
<b>9.3</b>	<b>Video References</b>	<p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p> <p><a href="https://onlinecourses.nptel.ac.in/noc24_mg01/preview">https://onlinecourses.nptel.ac.in/noc24_mg01/preview</a></p> <p><a href="https://www.youtube.com/watch?v=XNDePDD_CV4">https://www.youtube.com/watch?v=XNDePDD_CV4</a></p> <p><a href="https://www.youtube.com/watch?v=ZKOL-rZ79gs">https://www.youtube.com/watch?v=ZKOL-rZ79gs</a></p> <p><a href="https://www.youtube.com/watch?v=JQj6AOpb9g">https://www.youtube.com/watch?v=JQj6AOpb9g</a></p>

### Mapping of Outcomes v. Topics

Outcome no. → Syllabus topic↓	1	2	3	4	5
Paper Code. Unit I (a)	√				
Paper Code. Unit I (b)	√				
Paper Code. Unit I (c)	√				
Paper Code. Unit II (a)		√			
Paper Code. Unit II (b)		√			
Paper Code. Unit II (c)		√			
Paper Code. Unit III (a)			√		
Paper Code. Unit III (b)			√		
Paper Code. Unit III (c)			√		
Paper Code. Unit IV (a)				√	
Paper Code. Unit IV (b)				√	
Paper Code. Unit IV (c)					√

## QUESTION BANK

### Unit I: Introduction to Project Management

1. What is the significance of understanding the concept of the project life cycle in project management? Provide examples to illustrate your answer.
2. Discuss the key principles of project management and explain why they are important for successful project execution.
3. How does a project manager contribute to the overall success of a project? Outline the roles and responsibilities of a project manager in detail.
4. Explain the steps involved in project planning. How do project planning tools aid in effective project management?
5. Describe the process of project team development. What strategies can a project manager employ to ensure effective team collaboration and productivity?
6. Discuss the concept of project planning estimation. What are the different approaches used for estimation, and when is each approach most appropriate?
7. Explain the concept of the time value of money in project management. How is it applied in project decision-making processes?
8. Mr X borrow rupees 5,00,000 to buy house if he pay equal installments for 20 year @10 percent per annum compute amount of installement.
9. James deposit \$1200 at the end of the year into an ordinary annuity that pay 6% annual interest at the beginning of each year. What is the future value of the account at the end of 5 years.
10. Kriestan want to have \$8,00,000 in an annuity by the times she retires 30 years from now if the annuity pay fixed annual interest of 5% at the end of each year, how much money should she deposit into each month into this account for next 30 years.
11. What is the future value of \$10000 , 20 years from now given an annual interest rate of 6 % what is the present value of \$10000, 10 years from now given the same annual interest rate of 6%.
12. Ram wishes to buy an immediate annuity that offer a fixed interest rate of 7 %. He wants to receive a cashflow of \$5,000 per month does he need to put into an annuity to generate this cash flow (ignore any fees charges or any bonus credit by the insurance company).
13. How much money do you need to invest now to generate a cash flow of \$1,000 every year for the next 5 years given an annual interest rate of 6 %.

### **Unit II: Investment Criteria**

14. Define the net present value (NPV) method and explain its significance in investment decision making. Provide a hypothetical investment scenario to illustrate the calculation of NPV.
15. What is the benefit-cost ratio (BCR), and how does it differ from NPV? Discuss the strengths and limitations of using BCR as an investment criterion.
16. Explain the concept of internal rate of return (IRR) and its relevance in evaluating investment projects. How is IRR calculated, and what does a positive or negative IRR indicate?
17. Discuss the significance of the payback period as an investment evaluation metric. How is the payback period calculated, and what factors should be considered when interpreting the results?
18. Describe the accounting rate of return (ARR) method and its application in investment appraisal. What are the key assumptions underlying ARR, and how reliable is it as an investment criterion?
19. Compare and contrast different investment evaluation methods such as NPV, IRR, and payback period. In what situations would one method be preferred over the others?
20. How do urgency and risk influence investment decisions? Discuss strategies that organizations can adopt to manage urgency and mitigate risks associated with investment projects.
21. A project cost Rs 10 lakh yield an annual inflow of Rs 20,000 for 8 years calculate pay back period.

22. XYZ company want to buy a new machine and its cost can be recovered in 5 years. Cost of machine 3,00,000 sales revenue generated 4,00,000 variable cost (60% of sale), fixed cost other than 20,000, life of machine 8 years tax 15 % on profit.
23. Write down in detail about decision rule of pay back period method.
24. Calculate the internal rate of return of an investment of Rs 1,36,000 , which yield the cash inflow.

Year	Cash inflow
1	30000
2	40,000
3	60,000
4	30,000
5	20,000

### Unit III: Project Risk Analysis

25. What are the primary sources of project risk, and how can they be categorized? Provide examples of risks commonly encountered in project management.
26. Explain the concept of sensitivity analysis in project risk management. How does sensitivity analysis help in identifying key risk factors and assessing their impact on project outcomes?
27. Discuss the significance of scenario analysis as a risk assessment technique. How does scenario analysis differ from sensitivity analysis, and when is it preferable to use?
28. Describe the break-even analysis method and its application in project risk management. How can break-even analysis help in determining the threshold for project profitability?
29. What is the Hiller model, and how is it used in project risk analysis? Discuss its strengths and limitations in predicting project outcomes under uncertainty.
30. Explain the concept of simulation analysis in project risk management. How does simulation analysis help in modeling complex project scenarios and evaluating potential outcomes?
31. Discuss the decision tree analysis method and its relevance in project risk assessment. Provide examples to illustrate how decision tree analysis can aid in making informed decisions under uncertainty.
32. A construction project has identified three potential risks: Risk A with a probability of occurrence of 0.2 and impact of \$50,000, Risk B with a probability of 0.3 and impact of \$80,000, and Risk C with a probability of 0.5 and impact of \$100,000. Calculate the expected monetary value (EMV) of each risk and the total project risk exposure.
33. A software development project has identified four risks with the following probabilities and impacts: Risk 1 (0.25, \$20,000), Risk 2 (0.15, \$30,000), Risk 3 (0.35, \$15,000), and Risk 4 (0.25, \$25,000). Calculate the risk priority number (RPN) for each risk using the Risk Impact and Probability Matrix approach.
34. In a project, the optimistic completion time for a task is 10 days, the most likely completion time is 15 days, and the pessimistic completion time is 20 days. Calculate the expected completion time using the PERT formula and determine the standard deviation of the completion time.
35. A manufacturing project involves three major tasks: Task A (3 weeks), Task B (5 weeks), and Task C (4 weeks). Task B can start only after Task A is completed, and

Task C can start only after Task B is completed. If Task A is delayed by 1 week, how does it impact the project completion time?

36. Using a Monte Carlo simulation, estimate the probability distribution of project cost for a construction project with three uncertain cost factors: Labor (\$50,000 ± \$5,000), Materials (\$100,000 ± \$10,000), and Equipment (\$30,000 ± \$3,000). Run 1,000 simulations and analyze the results.
37. A project has a budget of \$500,000 and is expected to be completed in 12 months. After 6 months, the actual cost incurred is \$300,000, and only 40% of the work has been completed. Calculate the cost performance index (CPI) and schedule performance index (SPI).
38. In a decision tree analysis for a project, there are two decision points with the following outcomes: Decision 1 (Probability of Success = 0.6, Profit = \$100,000; Probability of Failure = 0.4, Loss = \$20,000) and Decision 2 (Probability of Success = 0.8, Profit = \$50,000; Probability of Failure = 0.2, Loss = \$10,000). Calculate the expected monetary value (EMV) of each decision.
39. A project team estimates that the probability of completing a project within the given timeline is 0.7. If the project is not completed on time, there's a 0.6 probability of incurring a delay cost of \$50,000 and a 0.4 probability of incurring a delay cost of \$100,000. Calculate the expected delay cost.
40. A project manager is analyzing the impact of changes in raw material prices on the project budget. If the project requires 10,000 units of raw material at a cost of \$50 per unit, and the price increases by 20%, how does it affect the total project cost?
41. Using the Critical Path Method (CPM), calculate the expected project duration and identify the critical path for a project with the following task durations and dependencies: Task A (3 weeks), Task B (5 weeks), Task C (4 weeks), Task D (6 weeks), Task E (2 weeks). Dependencies: A → B, A → C, B → D, C → D, D → E.

#### **Unit IV: Social Cost Benefits Analysis**

42. Why is social cost-benefit analysis (SCBA) important in project evaluation? Discuss the rationale behind incorporating social costs and benefits into investment decisions.
43. Explain the UNIDO approach to social cost-benefit analysis. How does this approach differ from conventional economic evaluation methods?
44. Discuss the concept of net benefit in terms of economic impact assessment. How are net benefits calculated, and what factors are considered in determining the overall economic value of a project?
45. Describe the methods for measuring the distributional impact of a project in social cost-benefit analysis. How can income distribution and equity considerations be incorporated into project evaluation?
46. What are merit and demerit goods, and how are they addressed in social cost-benefit analysis? Discuss the challenges associated with valuing non-market goods and services in project appraisal.
47. Explain the Little-Mirrlees approach to social cost-benefit analysis. How does this approach account for shadow prices and market distortions in project evaluation?
48. Discuss the role of financial institutions in conducting social cost-benefit analysis. How do public sector investment decisions in India incorporate social costs and benefits into project evaluation frameworks?

49. A government is considering implementing a new transportation project. The project is expected to cost \$50 million to build and maintain over its lifetime of 10 years. The estimated benefits from reduced congestion and travel time savings are \$20 million per year. However, there will be environmental costs of \$5 million per year due to increased pollution. Calculate the net present value (NPV) of the project using a discount rate of 5%.
50. A company is evaluating two investment options: Option A involves upgrading its manufacturing facility to reduce emissions, costing \$2 million with annual savings in healthcare costs and environmental damage of \$500,000. Option B involves investing in renewable energy sources, costing \$3 million with annual savings in carbon emissions and energy costs of \$800,000. Using a discount rate of 8%, determine which option provides a higher net present value (NPV).
51. A city is considering building a new park downtown. The initial cost of construction is estimated to be \$10 million, and the park is expected to generate annual benefits of \$2 million from increased property values and recreational activities. However, there will be ongoing maintenance costs of \$500,000 per year. Calculate the benefit-cost ratio (BCR) of the park project.
52. A nonprofit organization is planning a community development project aimed at reducing crime rates in a neighborhood. The project will cost \$1.5 million to implement and is expected to result in annual benefits of \$300,000 from reduced crime-related expenses and improved property values. Additionally, the project is estimated to reduce social welfare costs by \$200,000 per year. Calculate the internal rate of return (IRR) of the project.
53. A government is considering investing in a new education program targeting at-risk youth. The program is expected to cost \$5 million annually and is projected to result in annual societal benefits of \$8 million from reduced crime rates, increased employment, and improved academic performance. Using a discount rate of 10%, calculate the net present value (NPV) of the program over a 5-year period.
54. A construction company is evaluating a project to build affordable housing units. The project is estimated to cost \$20 million and will generate annual benefits of \$6 million from reduced homelessness and increased property values. However, there will be ongoing social costs of \$2 million per year due to increased demand for public services. Calculate the payback period for the project.
55. A municipality is considering investing in a new public transportation system. The project is estimated to cost \$100 million to build and maintain over its lifetime of 20 years. The annual benefits from reduced traffic congestion and air pollution are estimated at \$25 million. Using a discount rate of 6%, determine the net present value (NPV) of the project.
56. A healthcare organization is evaluating the implementation of a preventive healthcare program. The program will cost \$3 million to implement and is expected to result in annual benefits of \$1.5 million from reduced healthcare costs and improved health outcomes. Additionally, there will be annual social benefits of \$500,000 from increased productivity and quality of life. Calculate the benefit-cost ratio (BCR) of the program.
57. A city is considering revitalizing a historic district to boost tourism and economic activity. The project is estimated to cost \$15 million and is expected to generate annual benefits of \$4 million from increased tourism revenue and job creation.



However, there will be ongoing social costs of \$1 million per year due to increased traffic congestion and noise pollution. Calculate the net present value (NPV) of the project using a discount rate of 7%.

58. A government is evaluating two alternative waste management projects. Project X involves building an incinerator, costing \$50 million with annual benefits of \$15 million from reduced landfill usage and waste management costs. Project Y involves implementing a recycling program, costing \$40 million with annual benefits of \$12 million from reduced resource depletion and environmental damage. Using a discount rate of 5%, determine which project provides a higher net present value (NPV).

### Unit V: Network Techniques for Project Management

59. How is a project network developed, and what is its significance in project planning and scheduling? Discuss the key components of a project network diagram.
60. Describe the process of time estimation in project management. What techniques can be used to estimate activity durations, and how accurate are these estimates?
61. Explain the concept of the critical path method (CPM) and its application in project scheduling. How does identifying the critical path help in optimizing project timelines?
62. Discuss the concept of resource-constrained scheduling in project management. How does shadowing affect project scheduling when resources are limited?
63. What is the Program Evaluation and Review Technique (PERT), and how does it differ from CPM? Discuss the advantages and disadvantages of using PERT in project scheduling.
64. Describe the network cost system and its role in project budgeting and cost control. How does the network cost system help in monitoring project expenditures and identifying cost variances?
65. Discuss the challenges associated with implementing network techniques for project management in real-world scenarios. How can organizations overcome these challenges to improve project efficiency and effectiveness?
66. and identifying cost variances?
67. Discuss the challenges associated with implementing network techniques for project management in real-world scenarios. How can organizations overcome these challenges to improve project efficiency and effectiveness?
68. Consider a construction project with the following activities and their respective durations:

1. Activity A: 5 days
2. Activity B: 7 days
3. Activity C: 4 days
4. Activity D: 6 days
5. Activity E: 8 days Determine the critical path, project duration, and float for each activity.

69. A software development project has the following activities and their dependencies:

1. Activity A (3 weeks)
2. Activity B (2 weeks, dependent on A)
3. Activity C (4 weeks, dependent on A)

4. Activity D (5 weeks, dependent on B and C) Determine the critical path, project duration, and slack for each activity.

70. In a construction project, the following activities and their estimated durations are provided:

1. Activity A: 3 weeks
2. Activity B: 6 weeks
3. Activity C: 4 weeks
4. Activity D: 5 weeks
5. Activity E: 2 weeks
6. Activity F: 7 weeks Identify the critical path, project duration, and total float for each activity.

71. A research project consists of the following activities with their durations and dependencies:

1. Activity A (2 weeks)
2. Activity B (3 weeks, dependent on A)
3. Activity C (4 weeks, dependent on A)
4. Activity D (5 weeks, dependent on B and C) Determine the critical path, project duration, and free float for each activity.

72. Consider a marketing campaign project with the following activities and their durations:

1. Activity A: 2 days
2. Activity B: 3 days
3. Activity C: 5 days
4. Activity D: 4 days
5. Activity E: 6 days Identify the critical path, project duration, and total float for each activity.

73. A construction project has the following activities and their durations:

1. Activity A: 10 days
2. Activity B: 6 days
3. Activity C: 8 days
4. Activity D: 4 days
5. Activity E: 12 days
6. Activity F: 5 days Determine the critical path, project duration, and slack for each activity.

74. In a software development project, the following activities and their dependencies are given:

1. Activity A (4 weeks)
2. Activity B (5 weeks, dependent on A)
3. Activity C (3 weeks, dependent on A)
4. Activity D (6 weeks, dependent on B and C) Calculate the critical path, project duration, and total float for each activity.

75. A manufacturing project consists of the following activities and their durations:

1. Activity A: 7 days
2. Activity B: 9 days
3. Activity C: 6 days

4. Activity D: 8 days Identify the critical path, project duration, and free float for each activity.

76. Consider a research project with the following activities and their durations:

1. Activity A: 3 weeks
2. Activity B: 5 weeks
3. Activity C: 4 weeks
4. Activity D: 6 weeks Determine the critical path, project duration, and slack for each activity.

77. In a construction project, the following activities and their dependencies are provided:

1. Activity A (2 weeks)
2. Activity B (3 weeks, dependent on A)
3. Activity C (4 weeks, dependent on A)
4. Activity D (5 weeks, dependent on B and C) Calculate the critical path, project duration, and free float for each activity.

78. Consider a construction project with the following activities and their respective durations:

1. Activity A: 5 days
2. Activity B: 7 days
3. Activity C: 4 days
4. Activity D: 6 days
5. Activity E: 8 days Determine the critical path, project duration, and float for each activity.

79. A software development project has the following activities and their dependencies:

1. Activity A (3 weeks)
2. Activity B (2 weeks, dependent on A)
3. Activity C (4 weeks, dependent on A)
4. Activity D (5 weeks, dependent on B and C) Determine the critical path, project duration, and slack for each activity.

80. In a construction project, the following activities and their estimated durations are provided:

1. Activity A: 3 weeks
2. Activity B: 6 weeks
3. Activity C: 4 weeks
4. Activity D: 5 weeks
5. Activity E: 2 weeks
6. Activity F: 7 weeks Identify the critical path, project duration, and total float for each activity.

81. A research project consists of the following activities with their durations and dependencies:

1. Activity A (2 weeks)
2. Activity B (3 weeks, dependent on A)
3. Activity C (4 weeks, dependent on A)
4. Activity D (5 weeks, dependent on B and C) Determine the critical path, project duration, and free float for each activity.

82. Consider a marketing campaign project with the following activities and their durations:

1. Activity A: 2 days
2. Activity B: 3 days
3. Activity C: 5 days
4. Activity D: 4 days
5. Activity E: 6 days Identify the critical path, project duration, and total float for each activity.

83. A construction project has the following activities and their durations:

1. Activity A: 10 days
2. Activity B: 6 days
3. Activity C: 8 days
4. Activity D: 4 days
5. Activity E: 12 days
6. Activity F: 5 days Determine the critical path, project duration, and slack for each activity.

84. In a software development project, the following activities and their dependencies are given:

1. Activity A (4 weeks)
2. Activity B (5 weeks, dependent on A)
3. Activity C (3 weeks, dependent on A)
4. Activity D (6 weeks, dependent on B and C) Calculate the critical path, project duration, and total float for each activity.

85. A manufacturing project consists of the following activities and their durations:

1. Activity A: 7 days
2. Activity B: 9 days
3. Activity C: 6 days
4. Activity D: 8 days Identify the critical path, project duration, and free float for each activity.

86. Consider a research project with the following activities and their durations:

1. Activity A: 3 weeks
2. Activity B: 5 weeks
3. Activity C: 4 weeks
4. Activity D: 6 weeks Determine the critical path, project duration, and slack for each activity.

87. In a construction project, the following activities and their dependencies are provided:

1. Activity A (2 weeks)
2. Activity B (3 weeks, dependent on A)
3. Activity C (4 weeks, dependent on A)
4. Activity D (5 weeks, dependent on B and C) Calculate the critical path, project duration, and free float for each activity.

88.

**PROJECTS (To be given to group of students)**

1. Designing and executing a community service initiative to address a local social issue.
2. Organizing and managing a fundraising event for a charitable organization.
3. Developing a marketing campaign for a new product or service.
4. Creating a business plan for a startup venture.
5. Planning and coordinating a cultural festival to celebrate diversity in the community.