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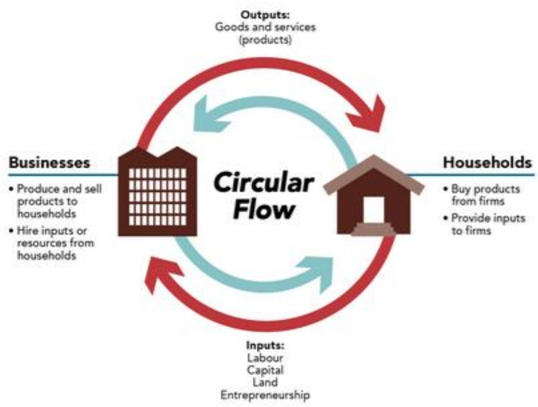
Academic year 2024-2025 (ODD Sem)

DEPARTMENT OF
INDUSTRIAL ENGINEERING & MANAGEMENT

Date	**07-01-2025**	**Maximum Marks**	**10 + 50**
Course Code	**HS251TA**	**Duration**	**30 + 90 Min**
Sem	**V**	**CIE – II Scheme & Solution**	
Principles of Management and Economics			

Sl. No.	Questions	M	BT	CO
	Part – A			
1	Single-use plans	01	1	1
2	restructuring	01	1	1
3	Star	01	1	1
4	Tactical planning	01	1	2
5	Formalization	01	1	1
6	Mechanistic Organization	01	1	2
7		02	1	4
8	Inflation	01	1	4
9	Consumer Price Index (CPI)	01	1	5
	Part –B			
1	(a) Strategic and Operational Plans for Controlling E-Waste Strategic Plan: The strategic plan focuses on long-term goals and sustainable practices aimed at minimizing e-waste over time. It is about creating a framework and setting the company's vision for managing e-waste effectively. The strategic approach will include: Establishing Clear E-Waste Goals: • Set measurable targets to reduce e-waste by a specific percentage over the next 5 years. • Define environmental sustainability goals related to e-waste, such as reducing the carbon footprint, recycling rates, and reusing electronic products.	10	2	2

Partnership with Certified E-Waste Recycling Companies:

- Collaborate with accredited e-waste recycling vendors that adhere to environmental and ethical standards.
- Engage in partnerships to create a closed-loop system for recycling electronics, ensuring safe and responsible disposal.

Sustainability Integration in Product Design:

- Encourage product designers to focus on creating devices with longer lifespans, easier disassembly, and the use of recyclable materials.
- Work with suppliers to integrate sustainable manufacturing practices in the production of electronic devices.

Employee Engagement and Education:

- Develop a culture of sustainability where employees are educated on the importance of responsible e-waste disposal.
- Encourage employees to dispose of electronics responsibly, either through recycling programs or by donating reusable items.

Operational Plan: The operational plan focuses on the day-to-day actions and processes that implement the strategic goals. These will be the concrete steps taken within the company to ensure that e-waste is handled properly.

E-Waste Collection Program:

- Create designated collection points within the company to gather old or unwanted electronics.
- Ensure that employees know how to recycle, donate, or properly dispose of electronic devices when they are no longer in use.

Tracking and Reporting System:

- Implement a system for tracking the company's e-waste production, including the types and quantities of electronics discarded or recycled.
- Regularly assess and report on the effectiveness of the e-waste management program, adjusting tactics when necessary.

Internal E-Waste Recycling and Refurbishing:

- Set up an internal team to assess old electronic devices for potential refurbishing or reuse within the company.
- Provide repair services for devices that can still be used, extending their life before being recycled.

Vendor Management and Compliance:

- Work closely with e-waste recycling partners to ensure they are complying with environmental and data protection regulations.
- Schedule regular audits of vendors to assess their adherence to responsible disposal practices.

(b) Short-Term and Long-Term Plans for Controlling E-Waste

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Short-Term Plans: These plans focus on actions that can be quickly implemented to start addressing e-waste concerns.

Set Up E-Waste Collection Points:

- Within the first quarter, create visible and accessible e-waste collection points in the workplace.
- Educate employees about proper e-waste disposal through internal communications, including email, posters, and meetings.

Organize an E-Waste Recycling Drive:

- Host a company-wide event or e-waste drive to encourage employees to recycle old electronics.
- Partner with local recycling facilities to ensure that devices are processed responsibly.

Develop an E-Waste Management Policy:

- Establish and communicate a clear e-waste management policy to employees, explaining the company's expectations and procedures.
- Implement a system for employees to request proper disposal of unwanted electronic items.

Initial Audit of Existing E-Waste:

- Conduct a thorough audit of current electronic devices and assets within the company to identify potential waste.
- Determine the best practices for decommissioning obsolete technology and ensure it is recycled or reused responsibly.

Long-Term Plans: These plans focus on creating lasting, systemic changes to ensure ongoing e-waste management and sustainability.

Develop a Circular Economy for Electronics:

- Create a closed-loop system for electronics where used devices are either refurbished for internal use or recycled to create new products.
- Encourage suppliers to use materials that can be reused and easily recycled.

Expand E-Waste Reduction Through Product Lifecycles:

- Work with manufacturers and R&D teams to explore creating products with longer life cycles, reduced obsolescence, and minimal environmental impact.
- Encourage repairability over replacement, which could reduce the overall e-waste generation.

Continuous Employee Training:

- Develop ongoing training programs that educate employees on the importance of e-waste management and sustainability.
- Offer incentives for employees to recycle and take an active role in the company's sustainability efforts.

	Implement Comprehensive Global E-Waste Strategy: • If the company operates globally, establish consistent e-waste policies and practices in all locations. • Work towards integrating e-waste management strategies in all markets, ensuring compliance with local regulations and global best practices. Sustainability Certification: Aim for certifications such as ISO 14001 (Environmental Management) or other recognized sustainability standards, reinforcing the company's long-term commitment to reducing e-waste. By focusing on both strategic and operational aspects, and addressing both short-term actions and long-term goals, this comprehensive approach will help the company minimize e-waste while promoting environmental sustainability.			
2	**Ways in which a firm could be organized for smooth functioning:** A well-organized firm ensures that tasks are allocated efficiently, resources are optimized, and communication flows smoothly. Here are several ways a firm can be organized for effective operation: 1. **Clear Organizational Structure:** o **Hierarchical Structure:** A well-defined hierarchical structure provides clarity on roles, responsibilities, and authority. This structure ensures that everyone knows who they report to and what tasks they are responsible for. o **Flat Structure:** In some cases, a flat structure (fewer levels of management) can promote faster decision-making and better communication, especially in creative industries or startups. o **Matrix Structure:** A combination of functional and divisional structures, ideal for firms that need to be flexible in responding to different markets and needs. o **Functional Structure:** Organizing the firm into specialized departments (e.g., Marketing, HR, Finance) ensures efficiency by allowing teams to focus on specific tasks. 2. **Clear Roles and Responsibilities:** o Clearly defined roles avoid confusion, prevent duplication of effort, and ensure that each employee knows what is expected of them. o A good job description system will help in aligning employees' efforts with company goals and make performance evaluations easier. 3. **Efficient Communication Channels:** o Communication should be open and clear, whether through meetings, emails, or management software. Efficient communication ensures that important information flows through the right channels, allowing for better decision-making.	10	2	2

- Tools like project management software (Trello, Asana) and collaboration tools (Slack, Microsoft Teams) help streamline communication across the organization.

4. **Decentralization vs. Centralization:**
   - **Centralization:** In highly regulated or large organizations, centralizing decision-making ensures consistency and control over key functions.
   - **Decentralization:** In organizations that need flexibility and faster response times, decentralizing decision-making empowers middle and lower managers to act independently within their scope of responsibility.
5. **Cross-Functional Teams:**
   - Establishing cross-functional teams to work on specific projects fosters collaboration across departments. This helps in solving problems from multiple perspectives and encourages innovation.
6. **Standard Operating Procedures (SOPs):**
   - Having SOPs in place for common tasks helps reduce errors and ensures consistency in output. SOPs should be regularly reviewed and updated to reflect changing needs and best practices.

Impact of Chain of Command and Span of Control on Efficient Functioning

Both **chain of command** and **span of control** play significant roles in determining how efficiently a firm can operate. Let's explore how each impacts organizational functioning:

1. Chain of Command:

The **chain of command** is the formal line of authority within an organization, showing who reports to whom. It defines the hierarchical structure and ensures clear accountability.

- **Clarity of Authority and Responsibility:** A well-defined chain of command ensures that each employee knows who they report to and who is responsible for making decisions. This clarity reduces ambiguity and confusion, helping employees focus on their work without second-guessing authority.
- **Improved Communication and Coordination:** In a proper chain of command, communication flows in an organized manner. Managers and supervisors have a clear understanding of what information needs to be passed up the hierarchy and what information should flow down to lower levels, ensuring smoother coordination.
- **Prevention of Conflicts:** A clear hierarchy helps in preventing power struggles or authority confusion. It ensures that conflicts over decision-making are minimized as employees know the designated leader for each area.
- **Efficiency in Decision-Making:** A strong chain of command ensures that decisions are made at the appropriate levels. In cases of centralized decision-making, the top management makes the decisions, while in

decentralized systems, middle or lower management can take on greater responsibility.

Drawbacks of a Strict Chain of Command:

- **Slow Decision-Making:** In organizations with a strict and rigid chain of command, decision-making can become slow because approvals have to pass through multiple levels of management.
- **Communication Bottlenecks:** If communication must go through a rigid hierarchy, it could lead to delays or miscommunications, especially in a fast-moving business environment.

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2. Span of Control:

The **span of control** refers to the number of employees a manager or supervisor directly oversees. The span can be wide (many subordinates) or narrow (few subordinates).

- **Narrow Span of Control (Few Subordinates per Manager):**
    - **Closer Supervision:** A narrow span allows managers to supervise their subordinates more closely, ensuring higher control and consistency in performance.
    - **Personalized Attention:** Managers can give more individualized attention to each employee, which is beneficial for employee development and motivation.
    - **Decision-Making Efficiency:** Managers can make decisions more effectively because they are closely involved with their team members and understand their performance better.

Drawbacks of a Narrow Span:

- **Higher Costs:** More managers are needed to oversee fewer employees, leading to increased costs.
- **Bureaucracy:** A narrow span of control can increase the layers of management, potentially leading to slower decision-making and bureaucratic inefficiencies.

- **Wide Span of Control (Many Subordinates per Manager):**
    - **Cost-Effective:** A wider span reduces the number of managers needed, lowering organizational costs.
    - **Empowerment and Autonomy:** Employees tend to have more autonomy and responsibility as they are less micromanaged. This can lead to greater innovation and quicker decision-making at lower levels.
    - **Faster Decision-Making:** With fewer layers of management, decisions can be made more quickly, improving responsiveness to market or organizational changes.

Drawbacks of a Wide Span:

- **Reduced Supervision:** Managers may struggle to provide adequate supervision and support if they are overseeing too many employees, potentially reducing productivity and morale.
- **Overload for Managers:** With a wide span, managers can become overwhelmed by the volume of work, leading to burnout and less time for strategic thinking or long-term planning.

	Conclusion: Both **chain of command** and **span of control** are essential in determining the operational efficiency of an organization. A well-balanced chain of command ensures clear authority, smooth communication, and proper accountability, while a suitable span of control enables managers to supervise effectively without being overwhelmed. The ideal balance depends on the company's size, culture, goals, and the complexity of its tasks. By carefully designing the chain of command and managing the span of control, a firm can ensure streamlined operations, faster decision-making, and ultimately, improved productivity and efficiency.			
3	**Viewing an Organization as a Unified, Purposeful System: Example from the Food Industry** In the food industry, the organization functions as a unified system made up of interrelated components that must work together toward a common goal: providing high-quality food products to consumers while achieving profitability and sustainability. Here's how this can be illustrated using different parts of a food company and their interrelationships: **1. The Inputs (Raw Materials, Labor, Technology):** The organization begins with the **inputs**, which are essential resources that feed the system. In the food industry, this includes: • **Raw materials** such as ingredients (e.g., vegetables, meats, grains) and packaging materials. • **Labor** in the form of skilled workers, including chefs, farmers, quality control specialists, and production line workers. • **Technology** used in food processing, packaging, and logistics to increase efficiency, quality, and food safety. **Interrelation:** These inputs flow into the system, where each part contributes to creating a food product. For instance, raw materials are sourced from suppliers, labor processes them through production systems, and technology helps maintain the product's safety and consistency. **2. The Transformation Process (Production and Manufacturing):** This stage represents the heart of the system — where raw materials are converted into finished food products. Key components include: • **Processing & Manufacturing:** The transformation process involves activities such as chopping, mixing, baking, cooking, and packaging. This is the stage where raw materials are turned into market-ready food products. • **Quality Control:** Ensures that the food meets safety standards (e.g., hygiene regulations, freshness) and consistency in taste, texture, and packaging. • **Recipe Development:** In food production, recipe development or product innovation ensures that the food meets consumer preferences and industry trends. **Interrelation:** The success of the transformation process depends on inputs (e.g., quality of	10	4	1

raw materials, technology) and labor working together efficiently. For example, if the raw materials are of poor quality, it will impact the final product despite the use of advanced technology or skilled labor.

3. The Outputs (Finished Products):

The output refers to the finished food products that are delivered to consumers. Outputs in the food industry can include:

- **Packaged Food Products** such as frozen meals, snacks, or beverages.
- **Freshly Prepared Food** for restaurants or quick-service food outlets.
- **Specialty Products** such as organic, gluten-free, or vegan food items catering to niche markets.

Interrelation:

The quality of the output is directly influenced by the processes, inputs, and feedback from other parts of the system. For example, if quality control fails, the food products will not meet consumer expectations and may be returned or recalled, leading to financial losses and brand damage.

4. The Marketing and Distribution Channels:

Once the food products are produced, they need to be delivered to the market. This part involves:

- **Marketing and Branding:** Developing effective marketing strategies and branding to appeal to target consumers. This could include advertising campaigns, social media promotions, and partnerships with retailers.
- **Distribution:** Food products are distributed to retailers, grocery stores, restaurants, or directly to consumers (via e-commerce). Logistics, transportation, and warehousing are key factors in ensuring timely and safe delivery.

Interrelation:

The effectiveness of marketing strategies depends on the quality of the products and consumer trust in the brand. Distribution networks must be efficient to maintain the freshness and safety of the food products. If the marketing and distribution teams are not aligned with the production team, the product may fail to reach the right audience or arrive in poor condition.

5. The Feedback Loop (Customer Feedback and Market Research):

Feedback is essential to the functioning of the food system. After the products are released to consumers, feedback from the market is collected through:

- **Customer Feedback:** Consumer satisfaction surveys, social media reviews, and sales data provide insights into whether the products are meeting consumer expectations.
- **Market Research:** Trends in dietary preferences (e.g., plant-based, low-sugar) and changing regulations in the food industry (e.g., labeling laws, health guidelines) inform future product development.

Interrelation:

Feedback from customers feeds back into the production and marketing systems. For example, if consumers report dissatisfaction with a product, the R&D and production teams might adjust the recipe or ingredients, while marketing can adjust the positioning. Market research helps ensure that the company adapts to new consumer demands and industry trends, ensuring continuous innovation.

6. Support Functions (Finance, HR, and Administration):

	Support functions are crucial for the smooth operation of the food company and include: • **Finance Department:** Ensures that there is sufficient capital for purchasing raw materials, expanding production, and investing in marketing. • **Human Resources (HR):** Manages recruitment, training, and employee welfare. Skilled labor is vital for food production, making HR a core part of the system. • **Administration:** Manages daily operational tasks, including compliance with regulations, maintaining records, and overseeing supply chain operations. **Interrelation:** These departments ensure the overall health and efficiency of the organization. For example, HR is key to recruiting the right people for production, marketing, and R&D, while the finance team ensures there is a budget for technology and growth. Without a solid financial plan or skilled workforce, the food company's operations would face disruptions. --- **The Unified System:** In the food industry, the organization functions as an interdependent system. Each part of the organization — from input procurement, manufacturing, marketing, and distribution, to feedback — relies on the others to achieve the common goal. A change in one part of the system will inevitably impact the others. For instance: • **If there's a shortage of raw materials**, it will delay production, resulting in delays in delivery to customers, which in turn could damage the company's reputation and lead to lost sales. • **If marketing fails to promote the right products**, even the best-quality food products may not reach the target audience, leading to poor sales. • **If there's poor feedback management**, the company might fail to innovate and adapt to consumer preferences, leading to a decline in market share. Thus, the food company needs to maintain strong coordination and integration between all these interrelated components, constantly adjusting the system to ensure efficiency, adaptability, and responsiveness to consumer demands and market changes. By working together, these parts of the system contribute to a unified, purposeful organization.			
4	Firms in an oligopoly will generally act more like competitors, but their behavior can also resemble that of a monopoly depending on the market conditions and strategies they employ. **Oligopoly** is a market structure where a few firms dominate the industry, and these firms are interdependent, meaning the actions of one firm can influence the others. Firms in an oligopoly may compete on price, product differentiation, and advertising, but they are also likely to collaborate or tacitly coordinate to avoid price wars or intense competition. **More like Competitors:**	10	3	4

	In an oligopoly, firms often compete in non-price ways, such as through advertising, product differentiation, and innovation. For instance, in the **smartphone industry**, companies like Apple, Samsung, and Google compete intensely on features, design, and branding rather than engaging in severe price competition. Here, firms are trying to outperform each other, but without directly cutting prices, because this could lead to lower profits for everyone in the market. **More like a Monopoly:** However, firms in an oligopoly may sometimes engage in **collusion** or **price leadership**, where one firm sets the price and others follow. This behavior is closer to how a monopoly operates since there is less competition, and the firms may work together to keep prices high. An example could be the **OPEC oil cartel**, where the member countries (oil producers) coordinate production and prices, behaving similarly to a monopoly by controlling the supply and thus influencing prices globally. **Conclusion:** In an oligopoly, firms will often act both like competitors and monopolies depending on their strategies. While they might compete fiercely in some areas, their interdependence can also lead to behavior that mirrors monopoly-like price control.			
5	To achieve the goal of low inflation, low unemployment, and healthy GDP growth in a rapidly developing country, a well-balanced strategy focusing on the **components of GDP** is essential. GDP is composed of four main components: 1. **Consumption (C)** 2. **Investment (I)** 3. **Government Spending (G)** 4. **Net Exports (NX)** Each of these components plays a crucial role in driving economic growth while managing inflation and unemployment. Here's how they can be leveraged effectively: **1. Consumption (C)** Consumption represents household spending on goods and services and is typically the largest component of GDP. • **Strategy to stimulate consumption**: o **Increasing household income**: Policies such as wage growth through labor market reforms, reducing personal income taxes, or increasing social benefits can boost disposable income, encouraging spending. o **Promote consumer confidence**: Providing job security and ensuring stability in key sectors can help build confidence, leading to greater consumer spending. o **Price stability**: Controlling inflation is key to ensuring that consumers' purchasing power is preserved. If inflation is too high, consumers may reduce their spending, which negatively impacts growth. Maintaining moderate inflation (2-3%) is a target for many central banks to achieve this.	10	3	4

- **Impact on inflation and unemployment**: Stimulating consumption can drive economic growth, but excessive consumption can lead to inflation. Hence, the government should balance consumption with efforts to increase productivity and avoid overheating the economy. With higher consumption, businesses are more likely to hire workers, reducing unemployment.

2. Investment (I)

Investment refers to business spending on capital goods (factories, equipment, etc.), and it also includes residential investments and investments in infrastructure.

- **Strategy to stimulate investment**:
  - **Encouraging business investment**: Providing tax incentives or subsidies to firms that invest in new technologies, infrastructure, or productivity-enhancing innovations can lead to higher business investment. Policies such as lowering corporate taxes or improving access to credit can make it easier for businesses to invest.
  - **Attracting foreign direct investment (FDI)**: Creating a stable and investor-friendly environment through favorable regulations, infrastructure development, and a skilled labor force can attract FDI, which can spur growth in key industries.
  - **Long-term infrastructure projects**: Investment in large-scale infrastructure projects (e.g., transportation, energy, telecommunications) can also improve the country's productivity in the long run.
  - **Impact on inflation and unemployment**: Investment increases the productive capacity of the economy, which helps reduce long-term inflationary pressures by increasing supply. It also helps create jobs, which reduces unemployment.

3. Government Spending (G)

Government spending on goods, services, and welfare programs also directly contributes to GDP.

- **Strategy to manage government spending**:
  - **Targeted public spending**: The government should focus on strategic investments that promote long-term growth, such as education, healthcare, and infrastructure. These expenditures increase human capital and infrastructure, which improves productivity and supports sustainable growth.
  - **Counter-cyclical fiscal policy**: During periods of low economic growth, the government can increase its spending (even if it means borrowing) to stimulate the economy, boost demand, and reduce unemployment. Conversely, during periods of high inflation, the government should scale back spending to avoid excess demand.
  - **Impact on inflation and unemployment**: Strategic government spending on productive sectors like education and infrastructure can enhance long-term growth without overheating the economy. If the government overspends or directs funds

inefficiently, it can lead to inflation, but carefully targeted spending can foster both economic growth and job creation.

4. Net Exports (NX)

Net exports (exports minus imports) are a critical component of GDP. A country that exports more than it imports (a trade surplus) will have a positive contribution to GDP.

- **Strategy to improve net exports**:
    - **Promote exports**: The government can support exports through subsidies, tax incentives, and trade agreements that open up international markets. Strengthening sectors with a competitive advantage, such as agriculture, manufacturing, or technology, can help the country gain a larger share of global markets.
    - **Diversify exports**: Encouraging the diversification of exports can help reduce the country's dependency on a single industry and buffer it against international market fluctuations.
    - **Exchange rate policy**: A competitive exchange rate, through either market forces or government intervention, can make exports cheaper and more attractive to foreign buyers, increasing demand for goods and services from the country.
    - **Attract foreign investment**: Foreign investments that result in the production of goods for export can also improve net exports.
    - **Impact on inflation and unemployment**: By boosting exports, the country can generate more income, which increases demand and drives economic growth, reducing unemployment. A trade surplus can also help reduce inflation by balancing the supply-demand equation. However, an overreliance on exports without sufficient domestic demand can make the country vulnerable to external shocks.

Balancing These Components

To successfully manage inflation, unemployment, and GDP growth, the country should aim for a **balanced approach** across all components of GDP:

- **Control inflation**: Keeping inflation low requires careful management of aggregate demand. Overstimulation through excessive consumption or government spending can lead to inflation. By focusing on increasing productivity and enhancing supply-side factors (investment in technology, education, and infrastructure), inflationary pressures can be minimized.
- **Reduce unemployment**: Low unemployment can be achieved by stimulating demand through consumption and investment, while also enhancing labor market flexibility and skills development. Government spending on infrastructure and education can also play a critical role in reducing structural unemployment.
- **Encourage sustainable GDP growth**: The key to sustainable growth is increasing both demand (via consumption and investment) and supply (via technological progress, infrastructure, and labor force development). Ensuring that growth is broad-based and inclusive will prevent income inequality and social instability.

Example:

	Consider a **rapidly developing country** like **Vietnam** in recent years. The government has focused on: • Attracting foreign direct investment (FDI) in manufacturing, particularly in the tech sector, driving **investment**. • Supporting exports of electronics and agricultural products, leading to an increase in **net exports**. • Boosting consumption by fostering a growing middle class with rising wages and improving social safety nets. • Increasing government spending on infrastructure projects, such as roads and power plants, which not only create jobs but also enhance long-term economic productivity. This balanced approach has allowed Vietnam to experience rapid growth with moderate inflation and low unemployment. **Conclusion:** To achieve low inflation, low unemployment, and healthy GDP growth, the country needs to carefully manage the four components of GDP: consumption, investment, government spending, and net exports. A focus on boosting productivity through investment in infrastructure and human capital, alongside strategic demand-side policies, can foster sustainable growth and avoid overheating the economy.			

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	CO5	L1	L2	L3	L4	L5	L6
	Quiz	Max Marks	04	02	-	3	1	10	-	-	-	-	-
	Test		10	20	-	20	-	-	20	20	10	-	-

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