CURRICULUM REVISION PROJECT

2012

TEACHER GUIDE FOR

Subject : Management Subject Code : 17601

SIXTH SEMESTER ALL BRANCHES OF ENGINEERING & TECHNOLOGY

DECEMBER 2014

MAHARASHTRA STATE
BOARD OF TECHNICAL EDUCATION, Mumbai
(Autonomous) (ISO 9001:2008) (ISO/IEC 27001:2005)

1. APPROACH TO CURRICULUM DESIGN

1.1 Background:

MSBTE is introducing the revised curriculum under 'G' scheme from the academic year 2012-13.

There are many institutions in the state running different diploma courses. In order to ensure uniform and effective implementation of the curriculum it is necessary that every teacher is aware of approach for curriculum design, educational principles to be adopted, learning resources to be used and evaluation methods. The teacher guide prepared for each subject will provide the inputs related to above mentioned aspects to achieve uniform and effective implementation of curriculum of various subjects.

1.2 CURRICULUM PHILOSOPHY

MSBTE has adopted systems approach while designing the scientific based curriculum since 1995. The same approach has been adopted while revising the curriculum in semester pattern.

Fig. No. 1 shows the systems diagram. This diagram provides the holistic view for curriculum designing, development, implementation and evaluation

The input to polytechnic education system is the students having 10+ qualifications. The teaching learning process occurs in the institution for six/eight semesters. The output of the system i. e. Diploma pass out is normally the input to industries. (Some students do go for higher education). While designing the curriculum the expectations of the industries play a major role. Due to globalization and competition the industries expect that pass outs have generic and technological skills along with right attitude.

To fulfill the needs derived from systems approach following conceptual framework is considered:

1.3 Curriculum:

"Curriculum is an educational program designed and implemented to achieve specified educational objectives"

This definition takes into account the fact that

- Education is purposeful
- There is an organized plan of action contemplated
- Such a plan is translated into action through appropriate strategies of implementation.

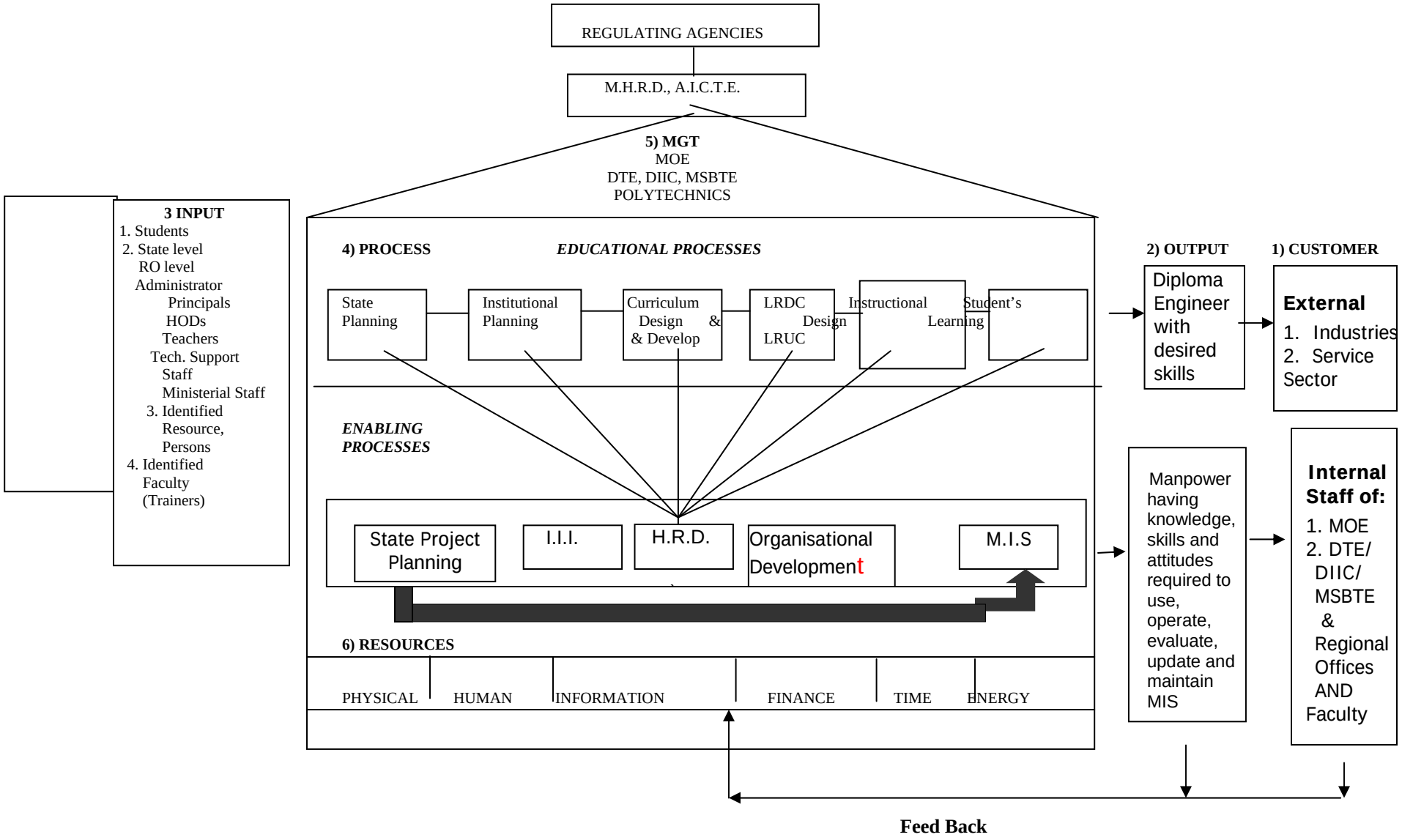


Fig 1 Systems Approach

1.4 Curriculum goals

1. To develop l. confidence in students by providing more exposure to industry experience and world of work at global leve
2. To provide conceptual knowledge and develop analytical ability
3. To develop communication skill with good English by providing sufficient practice
4. To enhance latest technical knowledge industry interaction and media
5. To develop learning to learn skills and life skills to cope up with industrial culture
6. To impart managerial skills by providing appropriate theoretical inputs
7. To develop problem solving ability through technical projects.

1.5 DESIRED SKILLS

Industries expect from the diploma engineer the abilities and skills of general nature and specific to the job performance. The curriculum aims at developing life skills and technological skills so that the diploma pass outs would be suitable for industry. The skills are listed below:

Life Skills:

- Search information from various sources
- Develop communication ability
- Develop Presentation skill
- Work as a member of a team/group and as leader
- Collect field data
- Develop Learning to learn
- Write report for given task/work/project
- Develop computer proficiency
- Develop observation skills

Technological Skills:

Diploma engineers should possess following Technological skills in order to satisfactorily perform duties assigned to them:

A) **Intellectual Skills**:

- Reading and interpretation of production drawings

- Planning for materials, tools, processes and quality control techniques.
- Use of Operation and Maintenance Manuals
- Operation of new equipment, machinery and instruments like CNC, PLC, controllers, Robotics, EDM, ECM, laser cutting/welding, etc
- Use of CAD for 2D drawings and familiarity with CAD software like Idea, Catia, Pro-E etc (Awareness level)
- Use of Moderns manufacturing techniques used in industry like 5S, Six sigma, TQM, TPM, ZD, JIT, Kanban, Poka-Yoke, Quality Control Charts, Reliability engineering, etc.
- Design of Machine Element
- Problem solving skills
- Cost Reduction techniques
- Use of standards (ISO-9000, QS14000, etc)

B) Motor Skills:

- Maintenance of modern equipments and machineries
- Develop drafting Skills
- Operate Lathes, Drilling Machines, CNC Machines, Milling amd Shaping Machines, Grinding Machines,
- Test Machine Performance
- Draw sketches of Civil engineering structures
- Carry out In process gauging
- Setting up of Automatic machines

1.6 Salient Changes in the curriculum:

- ❖ For First Semester Basic Science is divided into two parts- Basic Physics and Basic Chemistry. Theory examination of both parts as well as practical examination of both parts will be conducted on separate days. Sum of theory marks of both parts shall be considered for passing theory examination of Basic Science. Similarly it is applicable to practical examination. It is mandatory to appear for theory and practical examination of both parts. Candidate remaining absent in any examination of any section will not be declared successful for that exam head.
- ❖ For second semester Applied Science is divided into two sections- Applied Physics and Applied Chemistry where the theory examination of 50 marks each and practical examination of 25 Marks each will be conducted separately and the minimum passing marks for Applied Science will be the combination of both the sections. . It is mandatory

to appear for theory and practical examination of both parts. Candidate remaining absent in any examination of any section will not be declared successful for that exam head.

- The components of Development of Life Skills were taught in two semesters. In Development of Life Skills –I the topics related to personal development, such as Learning to Learn Skills, personality development, presentation skills etc. were included. In Development of Life Skills – II the topics related to Team Building, Leadership, group behavior etc. were covered. In the revised curriculum the scope of development of life skills has been broaden to include behavioral science component. Therefore the subject Development of Life Skills – II has been renamed and it is now included at Vth Semester in the revised curriculum under the title Behavioral Science.
- The subject of Professional Practices was introduced to integrate the skills acquired in Development of Life Skills, through technical subjects from second to sixth semester. The experience in implementing the contents of the subject shows that there are limited activities possible in second semester as the technical knowledge given to the students is very limited. Also at sixth semester the student are doing projects in which they are performing many activities included in the Professional Practices and therefore it is proposed that the subject of Professional Practices be prescribed only for three semesters vis. Third, fourth and fifth semesters.
- Introduction of Environment Studies at fourth Semester for all courses
- From the experience of implementation of Elective Subjects at V and VI semesters in last five years, it is proposed to have only one elective at the sixth semester for all courses. However the specialized courses like Medical Electronics, Electronics and Video Engineering will not have provision for electives. For elective, student will have to choose one from the given two/three subjects.
- While revising the curriculum redundant /obsolete topics/sub topics are being replaced by new/advance technology topics/sub topics.
- In Civil Engineering Group CAD and Building Materials have been added as an independent subject. Topics on Airport Engineering and Docks and Harbours have been added in the subject Transportation Engineering.

2. OBJECTIVES

2.1 Introduction

Objectives are the statements which describe the expected learning outcome. Such statements enable teachers to plan instructional process with appropriate resources. These objectives also provide a direction to frame proper questions to assess the learning outcome. During last decade there has been research on cognitive approach in psychology. This approach is based on biological structure of brain and meta-cognitive knowledge dimension. Important elements of this approach which form basics of learning are explained below.

2.2 Domains of Learning:

Learning is a process by which students develop relatively permanent change in mental associations through experience. This is how learning is defined by cognitive psychologists. Behavioral; psychologists define learning as a relatively permanent change in behavior.

There are following domains of learning:

A: Cognitive Domain relates to intellectual skills or abilities

B: Affective Domain relates to emotions, feelings, likes, dislikes etc.

C: Psychomotor Domain relates to manipulative skills of hands, legs. Eye-hand coordination in Engineering & Technology courses, endeavor is made to design curriculum with a focus on development of cognitive skills through classroom teaching. Where as manipulative (psychomotor) skills are developed in workshops, laboratories & seminars where students work individually or in a group. Development of affective skills attitudes and value is supposed to be acquired through projects and co curricular activities. These are also developed from the work culture or institutions.

How far a student has developed these abilities/skills especially from cognitive and psychomotor domains is assessed on the basis of suitable examinations. When classroom and laboratory teaching is viewed in this light, evaluation becomes an integral part of teaching – learning process.

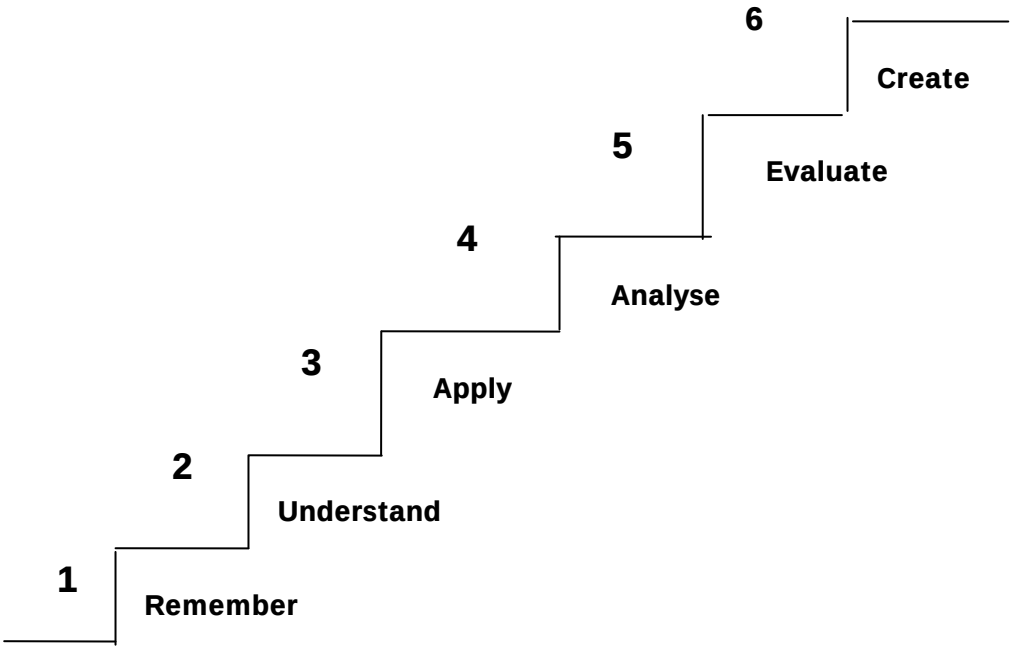
2.3 LEVELS OF LEARNING:

Question paper is a tool/ instrument designed to test the extent of learning of the student. Various questions set in a question paper should assess the abilities of students to respond to level of learning. Dr. Bloom a German educationist classified levels of learning in cognitive domain for the purpose of writing objectives and assessment. Dr. Bloom's revised taxonomy is based on cognitive psychology and is two dimensional. First dimension is cognitive process dimension ad other is knowledge dimension. Details of these two dimensions are given below.

2.4.1 Cognitive Domain:

Dr. Benjamin Bloom (1956) analysed questions asked in various examinations in American situation and proposed a hierarchical arrangement of instructional objectives (Intellectual abilities) tested by these questions.

The lowest level of cognitive learning achieved by a student is demonstrated by the recall of information that the student retrieves from his long term memory. So, the storage and retrieval of specific facts, concepts, principles, laws, definitions, properties, procedures etc. directly from memory was classified as a knowledge level objective. Thus questions testing memory of students were treated as at the lowest level of the hierarchy of intellectual abilities. The other levels of hierarchy proposed by Dr. Bloom in 1956 relate to the degree of information processing required in the brain needed to provide answer to a question. The various levels in the cognitive hierarchy proposed by Dr. Bloom in 1956 and further revised in 2001 are given below in the diagrammatic form.



Following are the details of each level which indicate the general and specific objectives. Further appropriate verbs are given which are useful in setting good questions. In this table only four levels are considered for diploma students.

Description of the Major Levels in the cognitive Domain (Bloom's Taxonomy)	Illustrative General Instructional Objectives	Illustrative verbs for stating specific learning outcomes
Remember – Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required to mind of the appropriate information. This represents the lowest level of learning outcomes in the cognitive domain	Knows common terms, specific facts, basic concepts, principles, methods & procedures	Define, describe, identify label, list, match, name, outline, reproduce, select, state
Understand – This is defined as the ability to grasp the meaning of material. This may be shown by translating material from one form to another (words or numbers) by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). Draw sketches these learning outcomes go one step beyond the simple remembering of material and represent the lowest level of understanding.	Understands fact, principles Interprets verbal material, Interprets charts, tables, graphs. Translates verbal material to mathematical formula. Estimates consequences implied in data. Justifies methods & procedures.	Convert, distinguish estimate, explain, extend, generalize, give examples; infer, paraphrase, predict, rewrite, summarize, draw labeled sketches.
Apply – Application refers to the ability to use learned material in new and concrete situations. This may include the application of such things as concepts, principles, rules, methods, laws and theories. Learning outcomes in this area require a higher level of understanding than those under the level described earlier.	Applies principles to new situations. Applies theories to practical situations. Solves mathematical problem. Construct charts, graphs Demonstrates correct usage of a procedure	Change, compile, demonstrate, discover manipulate, modify operate, predict, prepare, produce, show, solve, use.
Analyze – Analysis refers to the ability to break down material into its component parts so that its organizational structure may be understood. This may include the identification of the parts, analysis of the relationship between parts, and recognition of the organizational principles involved. Learning outcomes here represent a higher intellectual level than "understand" and apply because they require an understanding of both the content and the structural form of the material.	Recognizes unstated assumptions and logical fallacies in reasoning. Distinguishes between facts and inferences. Evaluates relevance/ adequacy of data.	Breakdown, diagram, differentiate, discriminate, distinguish, identify illustrate, infer, outline, point out, relate, select, separate, subdivide.

2.4.2 Categories of Knowledge Dimension

After considering the various designations of knowledge types, especially developments in cognitive psychology that have taken place since the original framework of Bloom's taxonomy, knowledge is categorised in 4 types – Factual , Conceptual, Procedural and Meta-cognitive.

Factual Knowledge (A) is knowledge of discrete, isolated content elements. It includes knowledge of terminology and knowledge of specific details and elements. In contrast,

Conceptual Knowledge (B) is knowledge of "more complex, organised knowledge form". It includes knowledge of classifications and categories, principles and generalizations and theories, models and structures.

Procedural Knowledge (C) is "knowledge of how to do something". It includes knowledge of skills and algorithms, techniques and methods, as well as knowledge of criteria used to determine and/or justify "when to do what" within specific fields and disciplines.

Meta-cognitive knowledge (D) is "knowledge about cognition in general as well as awareness of and knowledge about one's own cognition. It encompasses strategic knowledge, knowledge about cognitive tasks, including contextual and conditional knowledge; and self-knowledge".

Assessment is required to be done on the basis of categories of knowledge and levels of learning. Table below indicates the two dimensional grid based on Blooms Taxonomy for setting questions.

Knowledge Dimension	COGNITIVE PROCESS DIMENSION			
	1 Remember	2 Understand	3 Apply	4 Analyze
A. Factual Knowledge				
B. Conceptual Knowledge				
C. Procedural Knowledge				
D. Meta-cognitive Knowledge				

2.5 Components of Curriculum:

2.5.1 Rationale: It indicates the logical basis for the inclusion of the subject in the curriculum It also indicates the importance of the subject related to entire curriculum.

Rationale tells the students the connection of subjects related to study of higher level subjects and also the use in their job/profession.

2.5.2 Objectives: Objectives indicate what the student will be able to do/perform after he/she completes the study of the subject. It also in other words indicates the scope of the subject.

Objectives indicate what is achievable and hence gives direction to the student about how to study the subject, what important things are to be observed and performed during practicals.

Just as rationale indicates the use of the knowledge gained while studing the subject, objectives indicate how efficiently and effectively one can work if the objectives are fulfilled while studying the subject.

2.5.3 Learning Structure: It graphically/pictorially indicates the content of the curriculum of the subject and what is to be learnt in the subject. As you know that Cognitive Domain knowledge is divided in four components as mentioned in the Two dimensional grid. Of this Factual, Conceptual and Procedural knowledge components are identified in the curriculum of the subject along with the applications.
Facts, Concepts, Principles are used in developing procedures and applications. So these are given sequentially below procedure as Principles, Concepts and Facts in their order. Learning structure also provide an idea about how to develop the subject logically to achieve the objectives.

2.5.4 Contents: List of topics and subtopics to be included in the curriculum of the subject is given in the contents. This helps in achieving the rationale and objectives identified. Contents indicate the importance of the topics, sub topics in development of the subject and accordingly weightages in terms of Hours required to teach the subject components, so that the desired learning takes place. Marks to be allotted while testing the knowledge gained by the student are also indicated.

2.5.5 Practicals: While designing the curriculum the objectives are identified. To achieve these objectives students have to develop certain intellectual and motor skills. These skills are developed through well designed Practicals. So in the curriculum the list of the skills to be developed through Practicals is given. The list of Practicals is so developed that after performing the Practicals identified skills will be developed. Here it is necessary that the teacher gives enough opportunity to all the students to perform the practical properly to develop the skills in each one of them.

The skills will be developed if the students actually perform certain activities or tasks. Therefore it is necessary that any practical included in the curriculum necessarily involve some activities to be done by the students. So one has to think and innovate to modify the study experiments so that students will be asked to perform some activity. It could be in terms of identifying components, listing of materials used for manufacturing the components, stating importance of use of certain materials etc.

So any curriculum of a subject is so designed that it achieves the objectives of that subject as well as fulfill the objectives of the entire curriculum

3. CONTENT ANALYSIS

3.1 Components of Content Analysis:

As we have discussed earlier, any curriculum or syllabus of a SUBJECT given to the teacher is organised in terms of UNITS which include TOPICS or SUB-TOPICS as the case may be indicating the TIME in which it is expected to be taught to the students. Components of a topic or part thereof are analysed here at a micro level.

Before we begin actual teaching of any topic (lesson), we must carefully and critically analyse it so that we can plan for teaching - select appropriate media, methods and techniques of teaching and arrange the suitable resources to be required. This analysis of the content of a Topic results in identification of the following components of the content:

1. Facts
2. Concepts
3. Principles (rules, laws, theories)
4. Applications
5. Procedures
6. Skills (Psychomotor Skills), and
7. Attitudes (underlying affective behaviors as quite often these are not specifically mentioned in the curriculum, still they are to be developed lesson after lesson gradually).

When we undertake the exercise of content analysis, we ourselves understand the subject fully well and at the same time we become clear as to what we are going to teach. It also gives us an idea as to which methods of teaching and media of instruction we should prepare and use and also what resources including time we will require. This analysis will also enable us to design assignments as well as how we are going to assess students learning.

Since the nature of the components of content (1 to 7) differs from one another. These are learned by the students differently as different mental processes are involved in learning these components. The immediate implication of this varying nature of components is that these need to be taught differently and assessed differently. For example, if you look at components I to 5 all of which belong to Cognitive Domain of Learning; Component 6 belongs to Psychomotor Domain and Component 7 belongs to Affective Domain (cannot be taught as these attitudes are caught), you will find that these differ from one another. The classification of human behaviors (activities) into the above three domains of learning entails the use of entirely different methods and media of instruction. Different locations of learning (classroom, laboratories, workshops, field visits) need to be selected.

Now we will discuss these components in some detail and see how each one of these should be taught and assessed differently.

3.1.1 FACTS:

These are universally accepted and commonly understood items about which there cannot be much argument and discussion. These are required only to be informed. For example: The sun rises in east and sets in the west; names of scientists and the year in which their theories were propounded; the rules and regulations of admission and examination prescribed by the University are some of the examples of facts. Sometimes, they need not be emphasised in the class as the students already know them. But information can be passed on by word of mouth, if deemed necessary.

3.1.2 CONCEPTS:

A concept is an abstraction or an idea that permits the learner to classify a variety of related phenomena into a convenient and meaningful category. Concept of something is like a picture formation of that thing which helps in conceptualizing it. Gagne says that concept learning produces a certain fundamental change in human performance that is independent of subject or content. Concepts can be divided into the following two categories:

1. **Concrete Concepts:** those which can be seen, touched and manipulated e.g. house, book, table, chair, cat, dog, any machine or apparatus, overhead projector, chalkboard and duster.

2. **Abstract Concepts:** those which cannot be seen and touched and handled but can only be imagined e.g. force, work, fractions, decimal, bending moment, moment of inertia, friction, heat, and induction. Teaching of concrete concepts is not that difficult because the teacher can show

the object physically or its picture. On the contrary, teaching of an abstract concept offers difficulty to the teacher as well as for students to understand. These concepts can be learned by heart without understanding as children mug up Nursery Rhymes without understanding even a single word. But at the stage of higher tearing, this type of rote learning is not desirable. Adolescents (teenagers) and adults do not accept things without understanding.

3.1.3 Concept Attributes:

We identify a concept and understand it, once we are told about its qualities characteristics, and features. They are technically called concept attributes. While teaching a concept to our students we must spell out as many attributes as possible for better understanding of the concept.

Example: The Concept **of Friction**

Attributes:

1. Friction is a resistive force.
2. Frictional force acts in the direction opposite to the direction of the applied force.
3. Frictional force is more when the surfaces in contact are rough.
4. Smooth surfaces (perfect) have zero friction.
5. Frictional force is self-adjusting to a limit.

Towards the end of this Theme Paper a number of examples of concept attributes are given for your guidance.

The following questions pertaining to a concept (object or process) will be helpful in writing concept attributes:

1. What it is.
2. What are its constituent parts.
3. How it works.
4. How it is similar to and different from other known concepts.
5. What are its uses?

3.1.4 PRINCIPLES:

A principle is a statement of relationship between two or more concepts. Principles are sometimes called rules, laws or generalizations. In others words, relationship between two or more concepts which is scientific and universally true is called a Principle.

For Example: (related concepts are underlined)

1. Actions and reactions are equal and opposite.
2. Ohm's law I = V/R is a principle, where I (Current), V (Voltage), and R (Resistance) are the concepts. While teaching a principle we must recall the concepts which it involves. These concepts might have been taught in the previous lesson. As you already know, concept learning is a prerequisite to Principle learning. Thus we recall the concepts of current, voltage and resistance by asking questions to the students. Only after that we must tell the relationship among these i.e. Ohm's Law.

3.1.5 APPLICATIONS:

Whatever principles, laws and theories have been learned are only academic exercises unless these are applied to solve a practical problem. In other words, we call this application transfer of learning to a new situation. If you recall, the process of learning dealt with in Theme Paper 2, you will appreciate that the litmus test of learning having occurred is its application in a new situation or solving a new problem.

For example:

1. Ohm's law can be applied to find out the unknown quantity (voltage, current, and resistance).
2. Design of a structure can be made based on related principles and theories.
3. Principles of learning and events of instruction can be applied in ‘Designing a lesson Plan' and 'Presenting the lesson in the classroom".
4. The above principles can also be applied while preparing textbooks, workbooks, learning packages and laboratory manuals to be used by the students.

3.1.6 PROCEDURES:

While analysing the content of a topic you might come across certain standard procedures which are prescribed to perform an operation or a given task. These procedures should be clearly identified and taught accordingly not to be left to chance. We should not pre-suppose that the students understand them. We cannot afford to take these things for granted.

For Example:

1. Procedure of setting up of an apparatus.
2. Procedure to start an engine.
3. Procedure to operate a machine (a lathe).

3.1.7 SKILLS (PSYCHOMOTOR):

A skill is an ability to perform a task expertly and well. The skilled performance; must meet a pre-specified standard of acceptable performance. A skill has the following three characteristics:

1. It represents a chain of motor responses;
2. It involves the co-ordination of hand and eye movements, and
3. It requires the organization of chains into complex response patterns.

Skills could be intellectual (thinking, understanding); interactive (communication skills) and social (socialising, mixing up with others) also. But normally when we use the word skills, it refers to psychomotor skills.

For Example:

1. Welding a butt joint,
2. Setting a theodolite at a station,
3. Making proper circuit connections, and
4. Turning a job on a lathe machine.

Laboratories and workshops of Polytechnics are the locations where these skills are developed among the students under the guidance of expert instructors *of* operators. Drill and practice are the main methods of teaching and learning these skills through model demonstrations and careful observations thereof.

Alongside developing these skills, desirable attitudes like cooperation, team work, leadership, safety, cost consciousness are also developed.

3.2 TEACHING OF CONCEPTS;

In order to teach concepts effectively the following steps have been suggested by De Cecco & Crawford (1974).

Steps Suggested:

1. Describe the performance expected of the student after he has learned the concept.
2. Reduce the number of attributes to be learned in complex concepts and make important attributes dominant.
3, Provide the student with verbal indicators (explanation).
4. Provide positive and negative examples (non-examples) of the concept.
5. Present the examples in close succession or simultaneously.
6. Provide occasions for student responses and the reinforcement of these responses, and

7. Assess the learning of the concept.

3.3 TEACHING OF PRINCIPLES:

De Cecco & Crawford (1974) has suggested the following steps for teaching principles effectively.

Steps:

1. Describe the performance expected of the student after he has learned the principle.
2. Decide and indicate which concepts or principles the students must recall in learning the new principle.
3. Assist the student in the recall of component concepts.
4. Help the student in the recall of component concepts.
5. Help the student to combine the concepts and put them in a proper order.
6. Provide for practice of the principle and for reinforcement of student responses.
7. Assess the learning of the principle.

3.4 CONCLUSION:

To sum up, it can be said that. it is essential for the teachers to develop the skills of 'Content Analysis' of their subjects. It brings content clarity among teachers themselves. More importantly, Content Analysis will be a pre-requisite for writing Instructional Objectives of the topic to be taught. You will study Instructional Objectives in a separate Theme Paper in detail. Teaching and learning process is bound to be effective once these crucial academic activities are undertaken.

4. CURRICULUM:

Course Name : All Branches of Diploma in Engineering / Technology

Course Code : EJ/EN/ET/EX/EV/IC/IE/IS/MU/DE/ME/PG/PT/AE/CE/CS/CR/CO/CM/IF/ CW/EE/EP/EU/CH/CT/PS/CD/ED/EI/CV/FE/IU/MH/MI/TX/TC/FG

Semester : Sixth for EJ/EN/ET/EX/EV/IC/IE/IS/MU/DE/ME/PG/PT/AE/CE/CS/CR/ CO/CM/IF/CW/EE/EP/EU/CH/CT/PS/TX/TC/FG and Seventh for MH/MI/CD/ED/EI/ CV/FE/IU

Subject Title : Management

Subject Code : 17601

Teaching and Examination Scheme:

Teaching Scheme			**Examination Scheme**					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	--	1&½	50#*	--	--	--	50

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work (SW).**

Rationale:

Management concepts are universal and it is a multidisciplinary subject. They are equally applicable to different types industries like Manufacturing, Service and Trade as well as different kind of business activities like industry, army, school, hospital, retail shops etc. Also, at the end of diploma course polytechnic students are expected to enter in to the Industrial Environment. This environment is altogether different and new to the students. A proper introduction and understanding of management fundamentals is therefore essential for all these students.

Contents of the this subject will enable the students to address various issues related to human resource, finance, materials, legislations etc. by use of basic principles of management. This will ensure that students will play their role effectively to enhance the quality of business output in total.

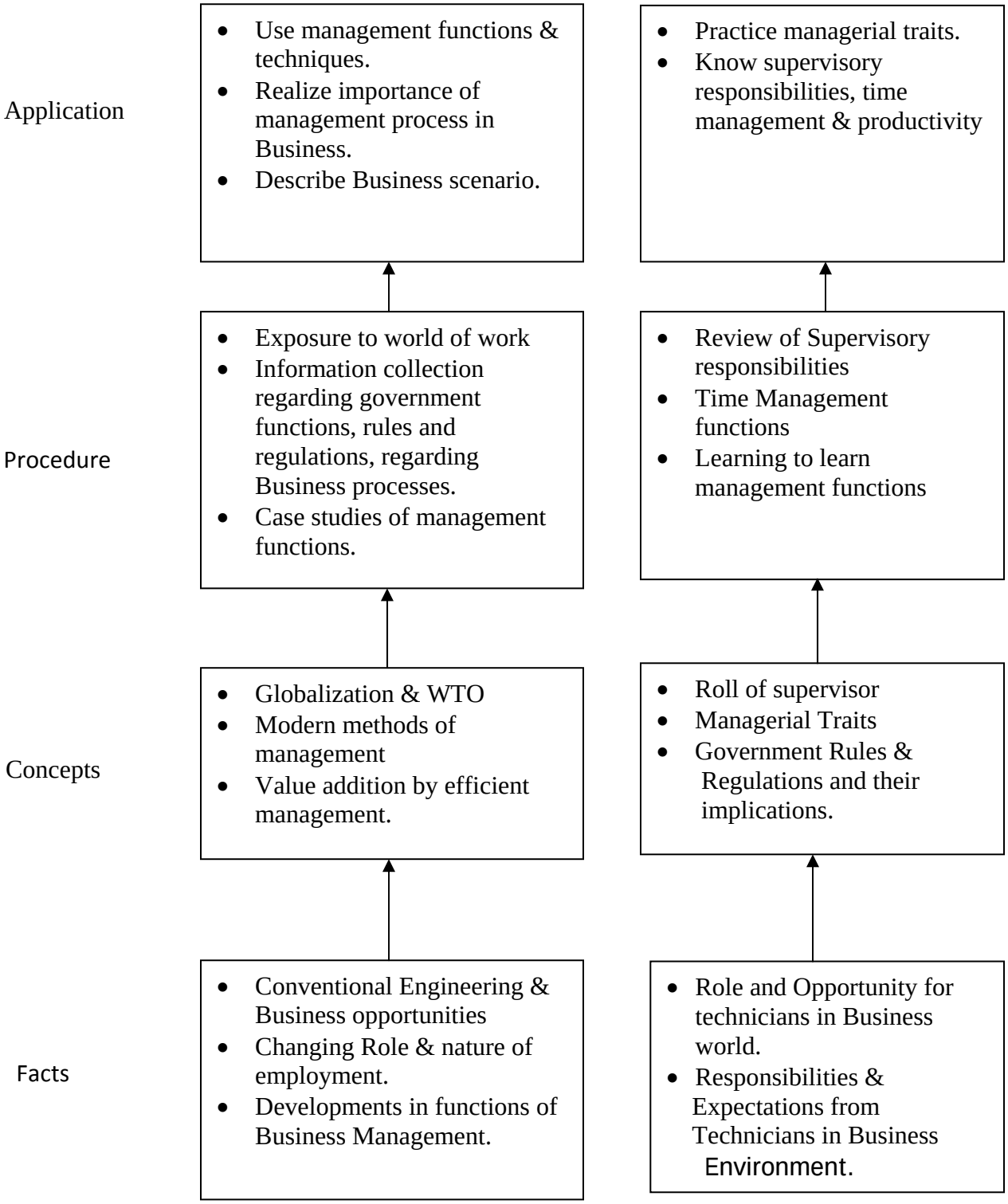
Objective:

The students will able to:

1. Get familiarized with environment related to business processes.
2. Know the management aspects of the organisations.
3. Understand Role & Responsibilities of a Diploma engineer.
4. Understand importance of quality improvement techniques.

5. Appreciate need and importance of safety in industries.
6. Understand process of Industrial finance and its management.
7. Know the latest trends in industrial management.

Learning Structure:



Contents: Theory

Topic and Contents	Hours	Marks
Topic 1: Overview of Business **Specific Objectives** ➢ State various business types and sectors ➢ Describe importance of globalisation 1.1. Types of Business • Service • Manufacturing • Trade 1.2. Industrial sectors Introduction to • Engineering industry • Process industry • Textile industry • Chemical industry • Agro industry • IT industry • Banking, Insurance, Retail, Hospitality, Health Care 1.3 Globalization • Introduction • Advantages & disadvantages with respect to India	02	04
Topic 2: Management Process **Specific Objectives** ➢ State various management principles ➢ Describe different management functions 2.1 What is Management? • Evolution • Various definitions of management • Concept of management • Levels of management • Administration & management • Scientific management by F.W.Taylor 2.2 Principles of Management (14 principles of Henry Fayol) 2.3 Functions of Management • Planning • Organizing • Directing • Controlling • Decision Making	08	08
Topic 3: Organisational Management **Specific Objectives** ➢ Compare different forms of organisation , ownership for a specific	08	08

business ➢ Describe types of departmentation 3.1 Organization : • Definition • Steps in organization 3.2 Types of organization • Line • Line & staff • Functional • Project 3.3 Departmentation • By product • By process • By function 3.4 Principles of Organisation • Authority & Responsibility • Span of Control • Effective Delegation • Balance ,stability and flexibility • Communication 3.5 Forms of ownership • Proprietorship • Partnership • Joint stock • Co-operative Society • Govt. Sector		
Topic 4: Industrial Safety and Legislative Acts **Specific Objectives** ➢ Describe types of accidents & safety measures ➢ State provisions of industrial acts. 4.1 Safety Management • Causes of accidents • Types of Industrial Accidents • Preventive measures • Safety procedures 4.2 Industrial Legislation - Necessity of Acts Important Definitions & Main Provisions of following acts: • Indian Factory Act • Workman Compensation Act • Minimum Wages Act	08	06
Topic 5: Financial Management (No Numerical) **Specific Objectives** ➢ Explain functions of financial management ➢ State the sources of finance & types of budgets.	08	08

➢ Describe concepts of direct & indirect taxes. 5.1 Financial Management- Objectives & Functions 5.2 Capital Generation & Management • Types of Capitals - Fixed & Working • Sources of raising Capital - Features of Short term, Medium Term & Long Term Sources 5.3 Budgets and accounts • Types of Budgets • Fixed & Variable Budget - Concept • Production Budget - Sample format • Labour Budget - Sample format • Profit & Loss Account & Balance Sheet - Meaning, sample format, meaning of different terms involved. 5.4 Meaning & Examples of • Excise Tax • Service Tax • Income Tax • Value Added Tax • Custom Duty		
Topic 6: Materials Management (No Numerical) **Specific Objectives** ➢ Describe concept of inventory, ABC analysis & EOQ. ➢ Describe purchase functions & procedures ➢ State features of ERP & MRP 6.1 Inventory Concept, its classification, functions of inventory 6.2 ABC Analysis - Necessity & Steps 6.3 Economic Order Quantity Concept, graphical representation, determination of EOQ 6.4 Standard steps in Purchasing 6.5 Modern Techniques of Material Management • Material Resource Planning (MRP) - Functions of MRP, Input to MRP, Benefits of MRP • Enterprise Resource Planning (ERP) - Concept, list of modules, advantages & disadvantages of ERP	08	08
Topic 7 Quality Management **Specific Objectives** ➢ State Principles of Quality Management ➢ Describe Modern Technique & Systems of Quality Management 7.1 Meaning of Quality Quality Management System – Activities, Benefits Quality Control - Objectives, Functions, Advantages Quality Circle - Concept, Characteristics & Objectives	06	08

Quality Assurance – Concept, Quality Assurance System 7.2 Meaning of Total Quality and TQM Components of TQM – Concept, Elements of TQM, Benefits 7.3 Modern Technique & Systems of Quality Management like Kaizen,5'S',6 Sigma 7.4 ISO 9001:2000 - Benefits, Main clauses.		
Total	**48**	**50**

Learning Resources:
Books:

Sr. No	Author	Name of Book	Publisher
01	Dr. O.P. Khanna	Industrial Engineering & Management	Dhanpat Rai & Sons New Delhi
02	Banga & Sharma	Industrial Engineering & Management	Khanna Publication
03	Dr. S.C. Saksena	Business Administration & Management	Sahitya Bhavan Agra
04	W.H. Newman E. Kirby Warren Andrew R. McGill	The process of Management	Prentice- Hall

E Source:

nptel.iitm.ac.in
http://iete-elan.ac.in/subjects/amIndustrialMgmt.htm

IMPLEMENTATION STRATEGY:

5.1 Planning of Lectures for a Semester with Content Detailing:

<table>
<tr><td>Topic I</td><td>Name: Overview of Business
Teacher shall implement the methodology/ techniques mentioned in the following table while teaching the topics. Along with this teacher may use additional/alternative methods to make students learning more meaningful.
e.g.
<table>
<tr><th>Knowledge Category</th><th>Example/s of category</th><th>Teaching methodology</th></tr>
<tr><td>FACT</td><td>Service</td><td>Examples of service sector industries are to quoted to start with such as Banking sectors, Insurance services and other service providers . The objectives and functions of service sector is to be explored. It is expected that learner should collect other service provider’s details viz Organization name, nature of service, objectives and function etc. Use OHP / PPT</td></tr>
<tr><td>CONCEPT</td><td>Globalization</td><td>Discuss Business environment before and after Globalization with the suitable examples. Data collection of organizations influenced by Globalization with its advantages and disadvantages. Use OHP / PPT</td></tr>
<tr><td>PRINCIPLE</td><td>Banking As A Service Provider</td><td>Explain the need and functions with suitable example. The principle of financial management is to be discussed. Students may visit to banks to get other details and working of banking. Use OHP / PPT</td></tr>
<tr><td>PROCEDURE</td><td>Types Of Business</td><td>Information collection regarding government functions, rules and regulations, regarding Business processes. Use OHP / PPT / Chalk Board</td></tr>
<tr><td>APPLICATION</td><td>Insurance</td><td>Explain the process of Insurance sector as a service provider . viz Vehicle Insurance , Workman’s Insurance etc is to be explored.Use Chalk Board</td></tr>
</table>
Learning Resources:
Books:
Title: 1) Industrial Engineering & Management, Dr. O.P. Khanna , Dhanpat Rai & Sons New
2) Industrial Engineering & Management , Banga & Sharma , Khanna Publication

Teaching Aid: Chalk and Board , Video Clips from You Tube regarding different industries

PPTs: -Develop ppt/ collect ppts from net and update accordingly.
Websites : 1) nptel.iitm.ac.in (2) http://iete-elan.ac.in/subjects/amIndustrialMgmt.htm</td></tr>
<tr><td>Lecture No.</td><td>Topic/ Subtopic to be covered</td></tr>
</table>

1	**1.1 Types of Business (Definition, salient features with suitable examples)** • Service • Manufacturing • Trade **1.2. Industrial sectors (Introduction , salient features with suitable examples)** • Engineering industry • Process industry • Textile industry • Chemical industry • Agro industry • IT industry • Banking, Insurance, Retail, Hospitality, Health Care
2	**Globalization** • Introduction : Definition , Importance ,Difference between local and Global Business Environment , Impact of Globalization • Advantages & disadvantages with respect to India.
Topic 2	**Name: Management Process** Teacher shall implement the methodology/ techniques mentioned in the following table while teaching the topics. Along with this teacher may use additional/alternative methods to make students learning meaningful. **e.g.**

Knowledge Category	Example/s of category	Teaching methodology
FACT	**Management**	Explore Meaning of Management with suitable example. Discuss Evolution, Definitions and Levels of Management . Use OHP / PPT / Chalk Board
CONCEPT	**Modern Methods of Management**	Discuss different philosophies of Management , contribution of different Gurus of Management and Scientific Management . Use OHP / PPT / Chalk Board
PRINCIPLE	**Management Principles**	Elaborate various principles of Management with suitable examples.
PROCEDURE	**Functions of Management**	Case Studies of Management , Use OHP / PPT / Chalk Board
APPLICATION	**Management Functions and Techniques**	Study and analysis of roles and responsibilities of various levels of management with the help of world of work case studies, Use OHP / PPT / Chalk Board

Learning Resources:

Books:

Title: 1) Industrial Engineering & Management, Dr. O.P. Khanna , Dhanpat Rai & Sons New
2) Industrial Engineering & Management , Banga & Sharma , Khanna Publication

Teaching Aid: Chalk and Board , Video Clips from You Tube regarding different industries

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<table>
<tr><th>Lecture No.</th><th>Topic/ Subtopic to be covered</th></tr>
<tr><td>1</td><td>What is Management? (Need and Importance of Management in Business Scenario with suitable example)
Evolution (Describe in a hierarchal manner)</td></tr>
<tr><td>2</td><td>Various definitions of management (Definition according to different Authors and elaborate its meaning)
Concept of management (Discuss management concept)</td></tr>
<tr><td>3</td><td>Levels of management (With the help of suitable example of world of work explain management levels with role and responsibilities of each level)
Administration & management (Explain with special emphasis on their difference . Quote appropriate example in this regard)</td></tr>
<tr><td>4</td><td>Scientific management by F.W.Taylor (Discuss Traditional Management with merits and demerits, different philosophies of Management and contribution By F.W.Taylor.)</td></tr>
<tr><td>5</td><td>Principles of Management (14 principles of Henry Fayol) Elaborate in detail with suitable example from world of work)</td></tr>
<tr><td>6</td><td>Functions of Management (Elaborate in detail)
Planning (Elaborate in detail with live example and its importance)</td></tr>
<tr><td>7</td><td>Organizing (Elaborate in detail with live example and its importance)
Directing (Elaborate in detail with live example and its importance)</td></tr>
<tr><td>8</td><td>Controlling (Elaborate in detail with live example and its importance)
Decision Making (Elaborate in detail with live example and its importance)</td></tr>
<tr><td>Topic 3</td><td>Name: Organisational Management
Teacher shall implement the methodology/ techniques mentioned in the following table while teaching the topics. Along with this teacher may use additional/alternative methods to make students learning meaningful.
e.g.
<table>
<tr><th>Knowledge Category</th><th>Example/s of category</th><th>Teaching methodology</th></tr>
<tr><td>FACT</td><td>Organization</td><td>Definition and steps in Organisation is to be discussed with suitable example. Essentials and necessity of Organisation can be explored. Use OHP / PPT / Chalk Board</td></tr>
<tr><td>CONCEPT</td><td>Types of Organisation</td><td>Various types of Organisation are to be explained with the help of various examples . Advantages and disadvantages of each of them are to be detailed out . Use OHP / PPT / Chalk Board</td></tr>
<tr><td>PRINCIPLE</td><td>Principles of Organisation</td><td>Epitomize Principles of Organisation with suitable examples of world of work. Discuss importance in detail . Use OHP / PPT / Chalk Board</td></tr>
<tr><td>PROCEDURE</td><td>State/ Public Enterprise/ Government Sector</td><td>Exemplify the Role and significance of Organisation in working of State/ Public Enterprise/ Government Sector . Use power point presentation to procedure out functions and its working .Use OHP / PPT / Chalk Board .</td></tr>
<tr><td>APPLICATION</td><td>Joint Stock Company</td><td>Illustrate with suitable examples the need and scope . Students are asked to scan some of the related examples. Case study may be discussed to detaile out functioning of joint stock company. Use OHP / PPT / Chalk Board.</td></tr>
</table></td></tr>
</table>

	Learning Resources: **Books:** **Title:** 1) Industrial Engineering & Management, Dr. O.P. Khanna , Dhanpat Rai & Sons New 2) Industrial Engineering & Management , Banga & Sharma , Khanna Publication **Teaching Aid**: Chalk and Board , Video Clips from You Tube regarding different industries , MCQs Practice Session with the help of Transparencies. **PPTs**: - MCQs Practice Session . Develop ppt/ collect ppts from net and update accordingly. **Websites :** 1) nptel.iitm.ac.in (2) http://iete-elan.ac.in/subjects/amIndustrialMgmt.htm
Lecture No.	Topic/ Subtopic to be covered
1	• **Organisation** (Elucidate Definition , Steps in organisation , essentials of organisation , Significance and need of Organisation . Discuss role of levels of management in organisation structure. Use appropriate power point presentations) • **Types of organisation** Elaborate with suitable example . Discuss Advantages and Disadvantages, Use appropriate power point presentations and illustrate effective flow of communication from one to other for **Line organisation** with the help of structural diagram
2	• **Types of organisation** Elaborate with suitable example . Discuss Advantages and Disadvantages, Use appropriate power point presentations and illustrate effective flow of communication from one to other for **Line & staff , Functional and Project Organisation** with the help of organisational structure.
3 & 4	• **Departmentation** Explain and classify with appropriate example. Elaborate Methods of Departmentation, Factors in Departmentation , centralisation and decentralisation, its advantages and disadvantages using power point presentation related to **By Product, By Process, By Function.**
5	• **Principles of Organisation** Use examples form world of work to explain Following Principles of Organisation. • **Authority and Responsibility** • **Span of Control**
6	Use examples form world of work to explain Following Principles of Organisation. • **Effective Delegation** • **Balance , stability and flexibility** • **Communication**
7	• **Forms of Ownership** Explain **Forms of Ownership** , Define **Sole Proprietorship** with proper example , and discuss its advantages and disadvantages. Use befitting examples to elaborate **Partnership** and types of partnership , partnership deed, agreement deed . Also discuss its advantages and disadvantages .
8	• Illustrate with relevant examples to explicate **Joint stock company** and its classification. Discuss Advantages and Disadvantages , Compare Joint stock company with Partnership company. Define **Cooperative society** , review its

	types , Discuss its salient features , advantages and disadvantages. Discuss in detail **State / Public Enterprise / Government Sector** with examples also explain its salient features , advantages and disadvantages. Compare private and Public Enterprise with suitable examples
Topic 4	**Name: Industrial Safety and Legislative Acts** Teacher shall implement the methodology/ techniques mentioned in the following table while teaching the topics. Along with this teacher may use additional/alternative methods to make students learning meaningful**.** **e.g.**

Knowledge Category	**Example/s of category**	**Teaching methodology**
FACT	**Safety Management**	With the help of different case studies and suitable power point presentations emphasize causes of accidents , types of industrial accidents, its preventive measures . Use OHP / PPT / Chalk Board
CONCEPT	**Industrial Legislation**	Handouts , power point presentations and case studies may be discussed to highlight Industrial acts and various provisions under this act.
PRINCIPLE	**Industrial safety act**	Emphasize Rules and regulations related to Indian factory act, Workman compensation act and Minimum wages act with the help of Expert Lecture and Group discussions.
PROCEDURE	**Safety Procedures**	Discuss various safety procedures . Use Video clips from You tube to elaborate procedural part. Arrange Expert Lecture.
APPLICATION	**Preventative Measures in safety management**	Observe various preventative measures in an industry during industrial visits. List out various equipments being used for preventation of accidents along with its proper applications . Organise safety awareness campaign in an Institute. Display posters in this regards in Workshops and Laboratories .

Learning Resources:

Books:

Title: 1) Industrial Engineering & Management, Dr. O.P. Khanna , Dhanpat Rai & Sons New
2) Industrial Engineering & Management , Banga & Sharma , Khanna Publication

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Lecture No.	Topic/ Subtopic to be covered
1	• **Safety Management** Explain importance of safety management . Discuss accident proneness and Tests of accident proneness. Elaborate Accidents , **causes of accidents** in detail . Use wall charts , posters , power point presentations to elaborate the topic
2	Explain **types of industrial accidents** , Brief out various case studies to clarify the types of accidents. Use Posters , Power point presentation .

3	Illustrate **preventative measures** related to industrial accidents, safety precautions and training of workers using power point presentation. Accident reporting and Investigation can be elaborated by specifying an industry based case study
4	Discuss various **Safety Procedures** and importance of promotion of safety awareness . Good housekeeping , precautions to be taken on shop floor during working, safety equipment economic aspects of accidents , and safe working conditions are to be highlighted in detail . Use wall charts , posters , power point presentation to clarify the topic.
5	• **Industrial Legislation - Necessity of Acts** Important definitions , Introduction to **Indian Factory Act** , Approval , Licensing and Registration of the factory , health Provisions, Safety Provisions, Welfare Provisions , Working Hours , Employment of Young persons, Annual leaves, , accidents & Diseases , Penalties , Miscellaneous Provisions are to discussed in detail with suitable example. Different case studies can be discussed . Use Power point presentation .
6	Brief out Employees' State Insurance Act 1948 , contributions , Benefits , Medical and other benefits with suitable example . Use handouts and Power point presentation .
7	Discuss **Workman's Compensation Act** , Employer's Liability for Compensation , Amount of Compensation, Notice of Accidents , Medical Examinations , Distribution of Compensation , Occupational Disease . Elaborate case studies , Use Power point presentation .
8	Discuss **Minimum Wages act** , Terms and conditions , Various definitions mentioned in act, provisions and benefits' etc are to be exemplified using case studies. Use Power point presentation .

Topic 5 **Name: Financial Management (No Numaricals)**

Teacher shall implement the methodology/ techniques mentioned in the following table while teaching the topics. Along with this teacher may use additional/alternative methods to make students learning meaningful**.**

e.g.

Knowledge Category	Example/s of category	Teaching methodology
FACT	**Financial Management**	Objectives and Functions of **Financial Management** is to be highlighted with the help Power Point Presentation. A suitable example is to be discussed in this regard to explain the importance.
CONCEPT	**Budgets and Accounts**	Discuss **type of budget** ,their sample formats & concept to create awareness in this regard. Show the various formats actual in use with the help Power point presentation. Distribute handouts to the students.
PRINCIPLE	**Income tax**	Explain the types of Direct tax which includes **Income tax**, Wealth tax and Gift Tax . The rules and regulations of income tax is to be detailed out. Explain with the help of suitable example using case study and Power point presentation
PROCEDURE	**Value added tax**	Elaborate VAT with suitable example using power point presentation. Explain the procedure of Value added tax

	APPLICATION	**Custom Duty**	Explain how custom is applied on goods with appropriate example. Use Power point presentation

Learning Resources:

Books:

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Websites : 1) nptel.iitm.ac.in (2) http://iete-elan.ac.in/subjects/amIndustrialMgmt.htm

Lecture No.	Topic/ Subtopic to be covered
1	• **Financial Management - Objectives & Functions** Discuss Objectives ,functions and importance of financial management. • **Capital Generation and Management** Introduce capital generation and management in brief. Explain with suitable example types of **Fixed and Working capital**. Use power point presentation
2	• **Capital Generation and Management** Explain sources of raising capital, Features of Short term , Medium term and Long term Sources. Use power point presentation.
3	• **Budgets and Accounts** Explain out types of budgets. Detailed out Concept of Fixed and variable budget, A sample format of Production Budget with suitable example. Distributes handouts of formats and asked students to study the same.
4	• **Budgets and Accounts** Discuss the contents of Sample budget related to Labour Budgets. Illustrate with suitable example Profit and Loss Accounts & Balance Sheet. Highlight Meaning , Sample Format and meaning of different terms involved. Use Power Point Presentation.
5	• **Meaning& Examples of various taxes** State Importance of taxation. Introduce a concept of taxation . Discuss taxation structure in India . Elaborate Direct and Indirect taxes. Use Power Point Presentation or chalk board method
6	• Illustrate the details of Excise tax and Service tax with suitable examples. State its importance and explain its significance. Use Power Point Presentation or chalk board method
7	• Explain the details of Income tax and Value Added tax with suitable example. State its importance and explain its significance. Use Power Point Presentation or chalk board method
8	• Describe Custom Duty in detail with suitable examples. Concept of Custom Act of India can be discussed . Discuss the various commodities classification as per HSN Give examples . Use Power Point Presentation or chalk board method
Topic 6	Name**: Materials Management** Teacher shall implement the methodology/ techniques mentioned in the following table while teaching the topics. Along with this teacher may use additional/alternative methods

to make students learning meaningful.

e.g.

Knowledge Category	Example/s of category	Teaching methodology
FACT	**Material**	Elaborate why material is necessary as resource, what different materials are used in industries, state examples of materials. Use OHP / PPT / Chalk Board
CONCEPT	**Inventory**	Define, categories and illustrate with example the inventory. Use OHP / PPT / Chalk Board
PRINCIPLE	**Economy**	Why economy is significantly involved in material management, what different methods are adopted and their economic consideration
PROCEDURE	**purchasing**	Discuss Purchasing policy and Steps in purchasing taking suitable example. Use OHP / PPT / Chalk Board
APPLICATION	**ABC analysis**	Taking suitable example explain how inventory can be categorized as A, B and C category items. Elaborate what policy is to be adopted for such categorized inventory. Use OHP / PPT / Chalk Board

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Websites : 1) nptel.iitm.ac.in (2) http://iete-elan.ac.in/subjects/amIndustrialMgmt.htm

Lecture No.	Topic/ Subtopic to be covered
1	Inventory Concept, its classification, functions of inventory (Define and discuss inventory. Its significance and need of material management)
2	ABC Analysis - Necessity & Steps (Elaborate taking suitable example)
3	Economic Order Quantity Concept, graphical representation, determination of EOQ. (economic consideration in material management is to be highlighted)
4	Standard steps in Purchasing (policy and procedure is focussed using suitable case study)
5	Modern Techniques of Material Management (scientific approach in current industrial scenario has to be given due weightage during discussion on this topic)
6	Material Resource Planning (MRP) - Functions of MRP, Input to MRP, Benefits of MRP (why, when, how and where to be MRP applied)
7	Enterprise Resource Planning (ERP) - Concept, list of modules, advantages & disadvantages of ERP (broader concept of enterprise activities and why ERP plays major role in its management need to elaoborated)
8	Revision about material management
Topic 7	Name**: Quality Management** Teacher shall implement the methodology/ techniques mentioned in the following table

while teaching the topics. Along with this teacher may use additional/alternative methods to make students learning meaningful.

e.g.

Knowledge Category	Example/s of category	Teaching methodology
FACT	**Quality**	Elaborate why quality is necessary, how it is referred in different way in industries, different definitions of quality, state examples of quality. Use OHP / PPT / Chalk Board
CONCEPT	**Quality circle**	Concept of quality circle is to be described taking day to day life example like poor performance in games by students at different tournaments. Case Studies /
PRINCIPLE	**Quality Management**	State principles of quality management, its importance in current scenario. Use OHP / PPT / Chalk Board
PROCEDURE	**5-S technique**	Elaborate 5 s technique and its procedure of implementation taking simple example like students hostel room and placement of their belongings. Use OHP / PPT / Chalk Board and case studies
APPLICATION	**Kaizen**	What is continuous improvement, how small steps can lead to larger desirable change, How kaizen can be implemented for betterment of work etc. should be discussed. A simple example of its application in daily work will be highly appreciated. Case studies.

Learning Resources:

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Lecture No.	Topic/ Subtopic to be covered
1	Meaning of Quality, Quality Management System - Activities, Benefits, Quality Control - Objectives, Functions, Advantages (thorough explanation about quality, different quality management systems and necessity of control on quality is expected)
2	Quality Circle - Concept, Characteristics & Objectives, Quality Assurance – Concept, Quality Assurance System (elaborate using suitable example)
3	Meaning of Total Quality and TQM , Components of TQM – Concept, Elements of TQM, Benefits (Broader discussion)
4	Modern Technique & Systems of Quality Management like Kaizen,
5	5'S',6 Sigma (Conceptual elaboration and importance of techniques are to be highlighted)
6	ISO 9001:2000 - Benefits, Main clauses. (Discussion on Concept of ISO system and its elaboration. Also importance of system is to be highlighted)

5.2 Planning and Conduct of Test:

a) The time table and sample test paper for the test should be displayed minimum 10 days before the test.
b) Each test will be of 25 marks.
c) First test should cover about 40% of curriculum and second test should cover remaining curriculum.
d) Format for question paper should be as per the sample question paper supplied by MSBTE.

e) Guidelines for Setting Class Test Question Paper:
- For this subject Examination pattern has shifted to Online Examination pattern in which students are expected to choose the appropriate option out the given four options. A Multiple choice questions based Class Test Question Paper should used for Class Tests as per following pattern
- All Questions are Compulsory
- Question no.1 to 15 should carry one Mark each (1X15 =15 Marks)
- Question no.2 16 to 20 should carry two marks each (2X5 =10 Marks)

5.3 Details about conduct of assignments: Not Applicable

Management concepts are universal and it is a multidisciplinary subject. They are equally applicable to different types of industries. The subject does not include Term Work or Practical Examination. So the conduct of assignment and Strategies for conduct of practical will not be a part of this guide.

But the knowledge acquired in this subject related to Industrial management concepts can be utilise for writing an Industrial Report in a better way.

5.4 Strategies for Conduct of Practical : Not Applicable

5.4.1 Laboratory Manuals: Purpose and Utility: Not Applicable

5.4.2 Suggestions for effective conduct of practical and assessment: Not Applicable

5.4.3 Preparation for conduct of practical: Not Applicable

6. Mode of assessment:

6.1.1 Class Test:

- There will be two tests each of 25 marks.
- The tests will be conducted as per the MSBTE schedule.
- Teacher should prepare model answer key of class test question papers.
- After completion of test, subject teacher should display model answer key on Department Notice Board.
- Teacher should show the answer paper of class test to the student and discuss about the mistakes.
- Teacher should maintain the record of class test as per MSBTE norms (CIAAN)

6.1.2 Sample Test Papers:

Sample First Test Question Paper :

Roll No.				

Institute Name :
Course Name : All Branches Course Code:
Semester : Sixth
Subject : Management
Marks : 25 Time 1Hr..

Instructions :

i) All questions are compulsory
ii) First thirty questions i.e. Que 1 to Que 15carries one mark each
iii) Que 16 to Que 20 carries Two marks each

Que 1) Annual Maintenance contract is related to-

a) Service Industry
b) Manufacturing Industry
c) Trade
d) None of the above

Que 2) India earns major share of foreign currency through

a) Banking industry
b) I.T. Industry
c) Textile Industry
d) Insurance Industry

Que 3) Identify type of industry for Banking sector.

a) Trade and Commerce
B) Manufacturing
c) Service industry
d) None of the above

Que 4) Type of Business includes

a) Trade
b) Manufacturing
c) Service
d) All of the Above

Que 5) Delegation of Authority means-

a) Finance release
b) Material release
c) Manpower release
d**)** Power release

Que 6) How many numbers of principles of management Henry Fayol suggested

a) 11
b) 12
c) 13
d)14

Que 7) Which of the following measures the current performance of an industry and

guides it

towards predetermined goals

a) Forecasting

b) Planning

c) Organising

d)Controlling

Que 8)Whichis the process by which manager select , train,pramote and retire their subordinates

a) Staffing

b) Directing

c) Co ordinating

d) Directing

Que 9) Alongwith Authority which one of the following should go together and hand in hand

a) Coordination

d)Cooperation

c) Responsibility

d) Control

Que 10) Coordination is achieved by

a) Direct contact and Start Early

b)Continuity

c) Interdepandance

d) All of the above

Que 11) How many numbers of Directors on Board , a private limited company has --

a) 2

b)3

c) 7

d) 10

Que 12)Which one of the following is also called as horizontal organisation

a) functional Orgnisation

b) Line Orgnisation

c) Line and staff Orgnisation

d) None of the above

Que 13) To start a business entreprise the most important thing required is –

a) Man

b) Machine

c) Material

d) Money

Que 14) If the capital is provided by many persons in the form of shares to an institute with a legal entity then it is

a) Private limited company

b) Ownership company

c) Partnership company

d) Joint stock company

Que 15) India adopted the Policy of Liberalisation , privatisation and Globalization in –

a) 1980s

b) 1950s
c) 1990s
d) 1970s

Que 16) Types of Scientific Management Includes-

a)Traditional Management
b)Scientific Management
c)a & b both
d)None of these

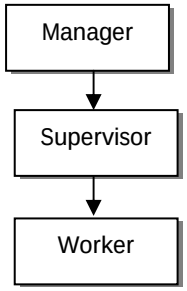
Que 17) The form of Joint stock company can be classified in which of the Two Ways –

a) Single Ownership & Partnership
b) Private Limited & Public Limited
c) Private ltd.& Government Sectors
d) Joint Stock Company & Public Corporations

Que 18) Which of the following are types of leadership

a) Authoritarian – Democratic –Laissez Faire
b)Democratic - Political - Communist
c) Socialistic - Free Rein – Authoritarian
d) All of the above

Que 19) Identify the type of organization from oragnisational chart shown in figure below-



a) functional Orgnisation
b) Line Orgnisation
c) Line and staff Orgnisation
d) None of the above

Que 20) ABC fabricators is a business organisation in which Mr. Prakash has invested his own individual capital. He usses his own skills in th management of its affairs and is solely responsible for the good or bad results of its operaion. In this type of business Mr. Prakash is supreme authority for taking decision. He has invested relatively less capital and enjoying all the profits he earns from business. Identify of ownership.

a) Sole Proprietorship
b) Private Limited company
c) Limited partnership
d) None of the above

6.2 End of Semester Theory Paper

6.2.1 Characteristics of a Good Examination Question Paper

6.2.1.1 Introduction

While a student answers a question, he refers to his Long Term Memory (LTM) and sees if the answer could be readily available from the memorised data. If this is not possible, the student processes information from his LTM and then provides the answer. All these activities are related to processes taking place in the brain. Through question paper, we are trying to measure intellectual activities which may not have precise measurement. The question paper which we use to measure learning of a certain topic is usually called an instrument or a tool. The question paper or the instrument we are designing to measure achievement in a given subject/content should have certain qualities which will ensure a fair degree of confidence on the results of the examination.

Standard of any examination depends upon quality of question paper and therefore efforts must be made to see that question paper is set on scientific principles. A question paper can be called a good quality question paper if it possesses the following essential characteristics.

- Validity
- Reliability
- Objectivity
- Usability

6.2.1.2 Validity

Validity refers to the extent to which it measures what it intents to measure. If we design a test or a question paper to measure what students have learnt in a subject, say “Applied Mechanics”, it should measure their achievement in Applied Mechanics only, nothing else; and the scores in this subject are not distorted by irrelevant factors. Basically, the, validity is always concerned with the specific use of the test results and the soundness of our proposed interpretations.

There are different types of validities of a test/question paper. In our examination question paper it is adequate and appropriate to consider only one type of validity i.e. content validity. The content validity is related to the extent to which the question paper conforms to the curriculum content and the pre-determined objectives. This validity is ensured by designing question paper that matches with the specification table, which contains content matter to be tested and the cognitive levels at which this content is to be tested.

6.2.1.3 Reliability

Reliability refers to the consistency of measurement i.e. the consistency with which an examination question paper measures whatever it measures. If a teacher gives today an achievement test in a subject to his students, how similar would have been the student's scores had this test been given yesterday or tomorrow? How would the scores have varied had the teacher selected a different sample of equivalent questions? If it were a question paper containing essay type question, how would the scores have differed had a different teacher scored / evaluated it? These are the types of questions with which reliability is concerned. Unless the measurement can be shown to be reasonably consistent over different occasions or over different samples of the same performance domain, we can have little confidence in the results.

While measuring length, can any one get consistent results while using a tape made of elastic material? Depending upon how much the tape is stretched; different lengths would be obtained on each occasion. Reliability estimates of a question paper refer to the results of measurement. A reliable (consistent) measure is not necessarily valid. Reliability is strictly a statistical concept.

Reliability or the amount of faith which can be placed on the scores/marks of a question paper depends upon a number of factors. Some of these factors are –

i) **Clarity, Definiteness and Objectivity of the question paper**

Question paper which permits students to make widely divergent interpretations of what is expected of them (in their answer) is not likely to yield highly reliable results. For example, teacher assessing the answer books may have different expectations from students, if the questions are not specific, and are worded vaguely.

ii) **Examiners Objectivity**

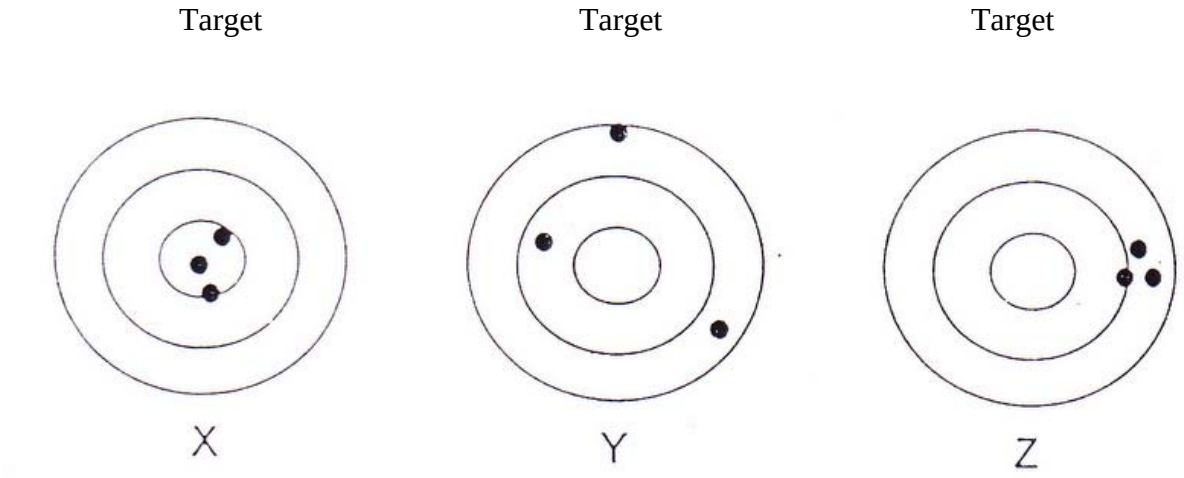
This relates to consistency with which examiners examine and mark the answer scripts/books. If marks assigned to answers are greatly influenced by the examiner's state of mind at that moment, no one will keep faith in the assigned marks, and reliability of marking is adversely affected.

iii) **Number of Questions**

Researchers have shown that more number of questions in a question paper lead to more reliability. Reliability also depends upon the spread of scores, difficulty level of the question paper and objectivity of scoring.

The relation between validity and reliability is sometimes confusing to persons who come across these terms for the first time. Reliability (consistency) of measurement is needed to obtain valid results

but we can have reliability without validity. The target shooting illustration, in the figure below, shows the concept that “reliability is a necessary but not a sufficient condition for validity”



Reliable & Valid Shooting | Unreliable & Invalid Shooting | Reliable but invalid Shooting

Three shooters X, Y, Z shoot at the target, each getting three shots. Shooter Y Shoots at different places far away from the bull’s eye. Z consistently shoots at the border spot. X consistently shoots close to the bull’s eye.

6.2.1.4 Objectivity

This concept is related to marking of answer scripts. When answer scripts are assessed and marked in such a way that the total score obtained by students to not change appreciably, we say that the marking is objective. As against this, if extraneous personal biases and preferences of examiners influence marking of answer scripts, the assessment is subjective in nature. Thus objectivity implies assessment free from all extraneous factors and is opposite to subjectivity.

The element of subjectivity can be substantially reduced and objectivity improved, if the following steps are taken.

1. Designing an assessment scheme for a course.
2. Developing specification table for question paper indicating distribution of marks for different topics and levels.

3. Preparing a format of question paper showing distribution of topics in different questions, and indicating types of questions for abilities to be tested.
4. Designing question paper as per specification table.
5. Editing the question paper so that it meets all the criteria and conform to the specification table.
6. Developing scheme of marking for the answers to supply type questions (i.e. questions which make students to provide answers in sentence/figural/graphical form). This is the most necessary requirement for reducing subjectivity.

6.2.1.5 Usability or Practicability

An examination system should be so designed that it is possible to implement it without much problems or difficulties. The system should not be something that looks good or ideal on paper but can't be implemented. In addition to providing examination results that possess a satisfactory degree of reliability and validity, an examination system should also satisfy certain other practical requirements, given below.

i) The system is economical from the point of view of both money and time.

ii) It should be easy for administration and marking.

iii) The system should be simple enough to be properly understood by all the concerned persons.

6.2.1.6 How to Ensure Reasonable Validity?

In order to have a valid test or an evaluation procedure, we must ensure that it is relevant to the purpose for which it is to be used; it means that there should be a close relationship between validity of a question paper and objectives of the test. In simpler words, by test validity we mean the *accuracy, conformity and effectiveness* with which the test measures *what it intends to measure* (Objectives).

The following steps can help to ensure reasonable degree of validity:

a) Specify the purpose of assessment.
b) Clearly define the objectives.
c) Divide the course content into convenient chapters.
d) Provide proportional weightage to each chapter.
e) Provide proportional weightage to different objectives and their levels.
f) Develop question on each of the sampled cognitive process dimension in each unit in accordance with the weightage assigned.
g) Avoid providing free option like 'attempt any 6 out of 9'. However, internal option of "either", "or" type can be given with proper care of content and objectives.

It can be noticed that the only assurance we have that a test is a *valid* measure of the intended learning outcomes, is to use a systematic procedure for obtaining a representative sample of the curriculum in the question paper. The table of specifications is a device which provides the procedure for obtaining a representative sample of curriculum in the question paper and thus ensures content validity.

6.2.2. Approach for Designing Good Question Paper

6.2.2.1 Concept of Specification Table

A table of specification is a blue print for test or question paper design. Just as an engineer prepares a blue print before constructing a structure, a specification table is prepared in advance of the examination, so that a valid test could be designed.

In fact, a Table of Specifications is a sampling plan of the objectives to be tested in the test. This ensures following things:

- All important topics of the subject matter are adequately represented.
- There is no undue weightage given to any particular topic/topics.
- No content area worthwhile for testing is omitted from the test.
- The test samples adequate proportion of abilities at different taxonomy levels, in each part.

6.2.2.2 Guidelines for Preparing Specification Table

1. Study the two dimensional table of objectives
2. Use the weightages of marks (out of 80) for each chapter/topic in the subject
3. In assigning relative weightages to each topic and level of learning outcomes, a number of factors have been considered. These factors are:
   - How important is each topic in relation with total learning experience?
   - How much time is expected to be devoted to each topic during instructions?
   - What relative importance does curriculum assign to each topic?
   - At what levels is the topic taught?
   - What amount of emphasis is given for each topic at what levels?

   Specification table should consider the following:
   - Content to be observed
   - Objectives to be achieved
   - Levels of objectives
   - Total time and marks for the paper

1. The specification table consists of chapters/topics and levels of cognitive process dimension like R, U, A.

   These cognitive process dimensions are –

   R = Remember

   U = Understand

   A = Analyse / Apply

5. Review the chapter/topic and think about probable distribution of marks at the three levels (R, U, A,) for assessment. Normally distribution be done in multiples of two marks. Enter marks for each topic under the levels R, U, A.
6. Make total of vertical columns R, U, A. Suggested distribution is R=10% to 30%, U=40% to 55% and A=30% to 45% depending upon the level of the students.

   A Sample Classification Table is given below with arbitrary marks.

Sample Question Paper :

Exam Seat No.								

17601

Maharashtra State Board Of Technical Education

Course Name : All Branches Course Code:
Semester : Sixth
Title of the Subject : Management Subject Code : 17601
Marks : 50 Time 1&1/2 Hrs.

Instructions:

i) All questions are compulsory
ii) First thirty questions i.e. Que 1 to Que 30 carries one mark each
iii) Que 31 to Que 40 carries Two marks each

Que 1) Integrating the economy of a country with global / word economy is -

a) Globalization
b) Privatization
c) Liberalization
d) L-P-G

Que **2) The goals of the enterprise are fulfilled through the use of resources like**

a) Man
b) Machine
c) Material
d) All of the above

Que **3) Globalization increases –**

a) Employment opportunity
b) Foreign Investment
c) Competition
d) All of the above

Que **4) India adopted LPG Policy in –**

a) 1980s
b) 1950s
c) 1990s
d) 1970s

Que **5) Management theories are interpretive and evolve with organisational changes**

a) It is scientific
b)It helps decision making
c)a & b
d) None of the above

Que **6) The function of putting together the different parts of enterprise into working order is referred as-**

a)Planning
b)Management
c) Organization
d)Administration

Que **7) Who is known as " Father of Scientific Management "**

a)Henry Feyol

b)F.W.Taylor

c)Gilberth

d)Juran

Que **8) Esprit De corps refers to –**

a)Team Work

b)Planning

c)Co-ordination

d)Authority

Que **9) Planning Means-**

a) Thinking before doing
b) Thinking after doing
c) Thinking during doing
d) All of the above

Que **10) Policy making in an industry is a role of –**

a) Management
b) Administration
c) Public
d) Workers

Que **11) Number of sub ordinates a manager can supervise effectively is -**

a) Scope of supervisor
b) Span of control
c) Focus of supervisor
d) None of the above.

Que **12) Reliance Industries Ltd. Is a form of –**

e) Single Ownership
f) Partnership
g) Private ltd.
h) Joint Stock Company

Que **13)In which type of organization the sub ordinates receive orders from their immediate boss-**

a) Line organization
b) Line and staff organization
c) Functional organization
d) Product organization

Que **14) Amul Dairy industries refers to which of the following company type-**

a) Private limited company
b) Ownership company
c) Partnership company
d) Co-operative company

Que **15) Collapse of crane is a cause of accident. Under which type of accidents does it comes ?**

a) Mechanical causes of an Accident
b) Natural Cause of an accident
c) Human error
d) All the above

Que **16) Workman's compensation act for workers came in to existence in year –**

a) 1950

b) 1992

c) 1986

d) None of the above

Que **17) Indentify the important wale fare provisions in an industry**

a)Canteen

b) Crèches

c) Lunch room

d) All of the above

Que **18) Age, Health, Fatigue and anxiety are the factors refers to-**

a) Environmental causes of accidents

b) Personal causes of accidents

c) Mechanical causes of accidents

d) All of the above

Que **19) Capital invested in Land and machinery is termed as –**

a) Floating capital

b) Fixed Capital

c) Sinking Capital

d) Working Capital

Que **20) Income tax and Property Tax falls under –**

a) Indirect Tax

b) Service Tax

c) Direct Tax

d) All of the above

Que **21) Which of the following comes under the title of "sources of fixed capital"**

a)Shares or Equities

b)Preference shares and Deferred shares

c) Public deposits and Debentures

d) All of the above**.**

Que **22) Major sources of for obtaining working capital are the commercial banks. They provide Finance in the form of:**

a) Loans and credit facilities

b) Overdrafts and mortgages

c) Bills of exchange and public loans

d) All of the above

Que **23) A technique for determining the quantity and timing of dependent demand items -**

a) EOQ

b) ABC analysis

c) MRP

d) BOM

Que **24)The input to MRP –**

a) Master production schedule

b) Inventory record file
c)Bill of materials
d) All of the above

Que **25) Which of the following process includes the activities of planning, scheduling and controlling material.**
a) Material Management
b) Resource Management
c) Resource Planning
d) ERP

Que **26) Cushion between supply and demand is called as -**
a) Material Management
b) Inventory Management
c) Sales and Purchases
d) None of the above

Que **27)A Technique based on a very universal Pareto's Principal that a few high usage value items constitutes a major part of the capital invested in inventories, whereas bulk of items in inventory , having low usage value constitute insignificance part of the capital.**
a) EOQ
b) ABC Analysis
c) a and b both
d) None of the above

Que **28) Identify important constituents of Total Quality Management from Following -**
i) Orderliness and Cleanliness ii) Punctuality and Continuous efforts
iii)Customers' Service iv) Standardization of work
a) Only i
b) Only i and ii
c) only ii
d) i, ii, iii, and iv

Que **29)Quality is the responsibility of --**
a) All those in concern with product including end user
b) All those who are working in the organisation
c) All those who are managers
d) All those who are supervisors

Que **30) Kaizen is a Japanese technique. Kaizen word is formed from two characters KAI and ZEN in which** -
a) KAI means change & ZEN means good
b) KAI means good & ZEN means change
c) KAI means good & ZEN means GURU
d) None of the above

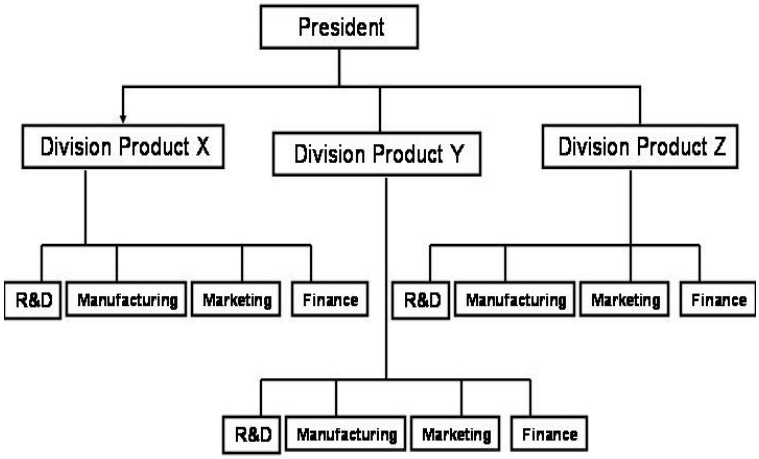
Que 31) **Which of the following pair is true for above management triangle**

a)Top Level –Strategic Decision – Chief Executive Officer
b)Middle Level –Tactical Decisions– Manager
c)Lower Level – Operational decisions – Foreman
d)All of the above

Que 32)Following are the kinds of partners-

a) Active partner and Sleeping Partner
b) Owner and Distrubuter
c)Global Partner and Media Partner
d)Permanent Partner and Temperory Partner

Que 33) The type of organisation structure in Blowplast Ltd is shown below . Which type of Organisation Structure is this.



a) Line Organistion

b) Line and staff organisation

c) Functional Organisation

4) None of the above

Que **34) Mr. Ramesh is working in ABC Electronics ltd in the capacity of Foreman. One Day while working in the organization he met with an accident in which he has to lose his right forehand . ABC Electronics is paying him fifty percent of his monthly wages in multiplication with relevant factor. Under which act he is eligible for the said amount?**

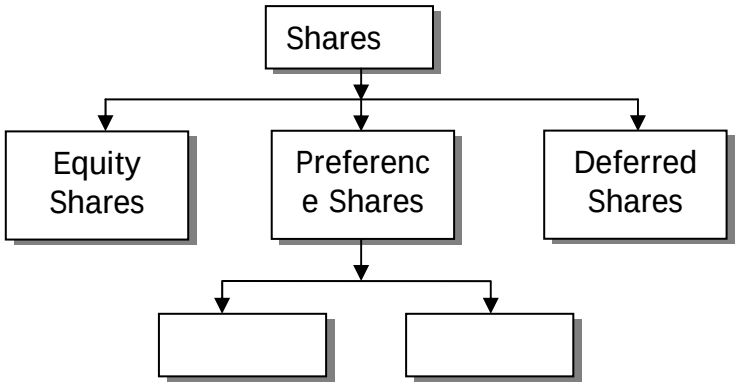
a) Indian Factory Act

b)Workman's Compensation Act

c)Minimum wages Act

d)Safety provisions Act

Que **35) Suggest the appropriate type of shares in the blank space provided in following figure.**



a) Cumulative ,Non Cumulative

b) Cumulative , Ordinary

c) Non Cumulative , Ordinary

d) Ordinary , Debentures

36) Name the type of following budget

XYZ Instrument Company Limited

No of units to be produced	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total Units
Product A													
Product B													
Product C													

a) Master Budget

b) Sales Budget

c) a and b both

d) None of the above

Que 37) Arrange the activities of purchasing procedure in the sequential form

i) Receipt of quotation ii) selection of right source of supply

iii) Receipt of purchase requisition iv) making comparative statement

a) i, iii, iv, ii

b) iii, i, iv, ii

c) iv, ii, i, iii

d) i ,iv, iii, ii

Que **38) ABC Auto ltd is a leading automobile company, manufacturing various range of automobiles. The company regularly requires large quantity material particularly raw materials and other essential accessories so that the requirement of the material is ascertained and the job of supplying is entrusted to a firm by calling quotations .Mr. M. Subrmaniyam is an sincere and workaholic person who is recently elevated from Assistant Manager (R & D) to Manager (Purchases). Company expects that he should set up a structured purchase procedure for such kind of purchases. Suggest which type of purchase procedure does Mr. M. Subrmaniyam should adopt so as to satisfy company's objective of structured purchasing.**

a) Market purchasing

b) Rate Contract purchasing

c) Global purchasing

d)Centralized purchasing

Que **39)Which of the following are two main elements of quality**

i) Quality of design ii) Quality of performance

iii) Quality of products iv) Quality circle

a) i and ii

b) i and iii

c) ii and iii

d) ii and iv

Que **40) Match the following- select the proper option**

l) ISO 9000-2000 i) Quality management system guidelines

m) ISO 9001-2000 ii) Quality management system vocabulary

n) ISO9004-2000 iii) Quality management system requirements

a) l-i. M-iii, n-ii

b) l-ii,m-iii, n-i

c) l-iii. M-i, n-ii

d) l-i. M-ii, n-iii

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