"Skilling is building a better India.
If we have to move India towards
development then Skill Development
should be our mission."

Shri Narendra Modi
Prime Minister of India

Certificate

COMPLIANCE TO
QUALIFICATION PACK –NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

Construction Sector Skill Council

for

SKILLING CONTENT : PARTICIPANT HANDBOOK

Complying to National Occupational Standards of

Job Role/ Qualification Pack _____'Mason Tiling'_____ QP No. _'CON/Q0104 NSQF Level 4'_

_____

Date of Issuance: April 9th, 2016
Valid up to*: April 10th, 2018

Authorised Signatory
Construction Sector Skill Council

*Valid up to the next review date of the Qualification Pack or the
'Valid up to' date mentioned above (whichever is earlier)

Acknowledgements

About this book

Construction industry is the second largest employer in India. As one of the leading avenues for employment in the country, the role played by this industry in the economic development of India is pivotal. However, despite its vast potential, the construction Industry faces a key challenge of shortage of skilled manpower. This hampers the progress of the industry, as the quality of constructed structure is poor and most projects failed to get completed within timelines.

There is a vast difference between the required skill and available skills of workers in the industry today. To reduce the skill gap, appropriate skilling of workforce needs to be carried out. This will not only empower the worker but also benefit the construction industry in terms of quality and productivity.

This Participant book is developed to impart training for the skill and knowledge required to work as a Mason Tiling in construction industry. It is designed based on Mason Tiling Qualification Pack under the National skill qualification framework. It comprises of the following NOS/ topics.

• Lay and fix tiles both horizontally and vertically on wall and floor

• Apply grouts and sealants for flooring and cladding works

• Work effectively in a team to deliver desired results at the workplace

• Plan and organize work to meet expected outcomes

• Work according to personal health, safety and environment protocol at construction site
  This book is designed considering the lower educational background of the construction worker. Therefore, special efforts have been made to explain the concept required for the job mostly through photos and illustrations.

  Units and symbols used in the book have been listed below.

Symbols Used

| Key Learning Outcomes | Steps | Time | Tips | Notes | Unit Objectives |

Table of Contents

1. Introduction

Key Learning Outcomes

At the end of this module, you will be able to:

1. Understand broadly the construction activities in India

2. Differentiate between real estate & infrastructure and rural construction

3. Know about major occupations in construction sector

4. Understand few job roles under each occupation

5. Know about role and duties of a mason tiling

6. Know about personal and professional attributes under the mason tiling occupation

7. List QP and NOS details of mason tiling programme

8. Know about career path as a mason tiling

9. Understand the purpose of training

10. Know about mode and duration of training program

11. Understand the benefits of training skill card & certification

UNIT 1.1: Overview of construction industry in India

Unit Objectives

At the end of this unit, you will be able to:

1. Understand broadly the construction activities in India; and
2. Differentiate between real estate & infrastructure and rural construction.

1.1.1 Introduction

Construction industry helps in developing and enhancing economic sector as well as aids in the development of the country. Construction activity plays an important role in country's infrastructure and industrial development. Construction refers to building of different structures such as hospitals, schools, townships, offices, and houses and other buildings (including water supply, sewerage, and drainage), highways, roads, ports, railway tracks, dams etc. If we are covering a wide spectrum, construction activity becomes the basic input for socio-economic development.

Construction is the second largest employment generating sector in India after agriculture. This sector comprises of small, medium and large industries or companies which are involved in different types of projects. This creates a diverse requirement of work force.

Construction industry is broadly divided into two major sub-sectors:-

1. Real estate & infrastructure construction; and
2. Rural construction

1.1.1.1 Real estate & infrastructure construction

Urban area inhabitants form only 30% of Indian population. As per estimates by the government of India, development in urban India is expected to rise at an astonishing rate of 38%. Indian Urban Infrastructure and Services, which was constructed during the British rule, is inapt at satisfactory dealing with such requirement. It is estimated that a venture of INR (Rs.) 43, 55,000 crores is required for urban development over the next 20 years. Out of this, the requirement for construction of urban roads is almost 45%.

As per the Twelfth Five Year Plan Article, private sources are expected to invest 48% based on several national policy initiatives introduced to reinstate investor confidence. To hasten up the growth of urban development across the country, the government has taken various actions and has assigned almost INR (Rs.) 13,400 crores under Jawaharlal Nehru National Urban Renewal

Mission (JNNURM). For Small and Medium towns the government has also initiated the Urban Infrastructure Development Scheme with an investment of INR (Rs.) 6,700 crores to cater to structural needs of small towns and cities.

Fig 1.1.1: Township construction   *Fig 1.1.2:* bridge construction

Government initiatives under urban development

• With the help of 'City Challenge Competition', Smart Cities, under 100 Smart Cities Mission, will be selected through the linking of financing and capability to attain multidimensional objectives of city infrastructure growth like passable and potable water source, hygiene and solid waste management, well-organized and efficient public transportation, affordable housing for the deprived, power distribution, strong IT connectivity, especially e-governance and inhabitants contribution, care and security of people, health and education and maintainable city environment.
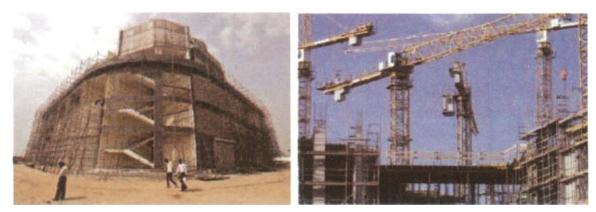
Fig 1.1.3: Building construction site   *Fig 1.1.4:* Industrial Building construction site

• SBM (Swachh Bharat Mission) aims at the elimination of open defecation, scientific Municipal Solid Waste Management, eradication of manual scavenging, to effect behavioral change regarding healthy sanitation practices.

- Expansion of heritage cities aimed at the enhancement in quality of life with a singular focus on hygiene, refuge, tourism, heritage renewal and livelihoods retaining the city ethos.

1.1.1.2 Rural construction

Rural Construction: This sub-sector aims at the constructional requirements of rural India and construction of rural households, warehouses, village roads etc.

Fig 1.1.5: Rural roads

Fig 1.1.6: Rural house

Rural infrastructure is not only an important element of rural expansion but also a significant element in ensuring any sustainable poverty reduction plan. The appropriate expansion of infrastructure in rural zones improves the rural financial system and quality of life. It encourages augmented agricultural profits, satisfactory employment etc.

Government initiatives under rural development

- Bharat Nirman initiative aims at rural connectivity. More than 6 lakh villages are located across varied topographical lands in India e.g. coastal, mountainous, back water areas, tribal pockets, plain, hilly, deserts, swamps etc.
- The main focus of Bharat Nirman is construction of rural housing. The government has to develop houses for the rural society.
- Pradhan Mantri Gram Sadak Vojna (PMGSY) provides one and only road connectivity to each village.
- Technology handover from workroom to land by disseminating of information on Cost Effective and Environment Friendly (CEEF) buildings in rural and urban zones.
- Enhancement and upgradation of skills of the workforce.
- Creation of a pool of qualified rural / urban construction workforce for construction of various services.

UNIT 1.2: Major occupation in construction sector

Unit Objectives 🎯

At the end of this unit, you will be able to:

1.   Know about major occupations in construction sector; and

2.   Understand few job roles under each occupation.

1.2.1 Major occupations in construction sector

Following occupations are very common in most of the construction projects:

1. Masonry: Masonry involves the work to use mortar for fixing constituents like brick, stone, block or others to build walls and buildings.

The basic objectives of masonry work include:

• Building of structure by laying material such as bricks, blocks, tiles and other construction materials, and bonding them by mortar
• Constructing, altering, repairing and maintaining walls, sidewalks, street curbs, floors, sink counters, partitions, manholes, and other related structures or surfaces.
• Carry out structural finishes like tiling, grit wash, cement wash, POP, plastering, stone cladding etc. on finished masonry surface to impart an aesthetic appeal to the finished structure.

Fig 1.2.1: Brick work

Fig 1.2.2: Plastering work

Few job roles under masonry occupation are:-
    i. Helper Mason

    ii.   Assistant Mason

    iii.   General Mason;

    iv.   Mason Tiling;

    v.   Mason Concrete;

    vi.   Mason marble, granite & stone; and

    vii.   Mason Special Finishing

    viii.   Mason Form Finishes & Special concrete.

2.   Bar Bending and Fixing: Bar bending and Steel Fixing involves works like shifting, straightening, cutting, bending and placing of the reinforcement bars in order to assemble cage/mesh according to given working structural drawing or specifications.

Fig 1.2.3: Reinforcement bars fixed at site   *Fig 1.2.4: Bar bending*

Few job roles under bar bending occupation are:-

    i.   Helper bar bender & steel fixer;

    ii.   Assistant bar bender & steel fixer;

    iii.   Bar bender & steel fixer; and

    iv.   Reinforcement fitter.

3.   Shuttering Carpentry: Shuttering Carpentry involves the use of timber boards or metal

Fig 1.2.5: Conventional formwork   *Fig 1.2.6: System form work*

plates to create a temporary structure for casting of concrete. These timber boards or metal plates are placed, positioned and fixed using rods and stakes known as false work. After fixing these boards or plates in designated area, concrete can be dispensed within these fixed molds. These molds contain the concrete in its place till it sets, thereby generating a hard, smooth structure.

Few job roles under shuttering carpentry occupation are:-

    i.   Helper shuttering carpenter;

    ii.   Assistant shuttering carpenter;

    iii.   Shuttering carpenter - system; and

    iv.   Shuttering carpenter - conventional.

4.   **Scaffolding:** Scaffolding works involve creation of temporary support structure for providing support to workman during construction process. It is use as a platform to carryon construction works and keep tools and materials.

Fig 1.2.7: Scaffolding work

Few job roles under scaffolding occupation are:-

    i.   Assistant scaffold - system; and;

    ii.   Assistant scaffold - conventional.;

    iii.   Scaffolder-System

    iv.   Scaffolder-Conventional.

    v.   Chargehand Scaffolding -System

    vi.   Foreman Scaffolding

5.   **Fabrication:** Fabrication is the process of construction of an item from raw materials using cutting, bending assembling process, instead of creating it from

Fig 1.2.8: Welding

ready to use components or parts. It involves various tasks such as cutting & heating, welding followed by final assembly of welded, sand-blasted, primed, painted components. Key part of this process is also the initial phases of grinding, drilling and surface preparation, essential for fabrication.

Few job roles under Fabrication occupation are:-

    i.   Grinder Construction;

    ii.   Construction fitter;

    iii.   Construction welder;

    iv.   Fabricator; and

Fig 1.2.9: Rigging work at site

v. Plasma cutter.

6. **Rigging:** Rigging is a set of actions used for moving, lifting and transferring objects by scheming and fitting various components and equipment. A team of riggers designs and installs the lifting or rolling equipment needed to raise, roll, slide or lift objects such as with a crane.

Few job roles under rigging occupation are:-

i. Khalasi;

ii. Rigger structural erection;

iii. Rigger precast erection; and

iv. Rigger piling.

Notes

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UNIT 1.3: Mason tiling - job role and responsibility

Unit Objectives ⌖

At the end of this unit, you will be able to:

1. Know about role and duties of a mason tiling;

2. Know about personal and professional attributes under the mason tiling occupation;

3. List QP and NOS details of mason tiling programme; and

4. Know about career path as a mason tiling.

1.3.1 Role of a mason tiling

Mason Tiling is responsible for identifying, cutting, grinding, shaping, laying, fixing and finishing the tiles on floors, walls using appropriate tools and equipment and as per the specified standards, patterns and within dimensional accuracy.

Fig 1.3.1: Placing tiles on the surface

As part of the job role, Mason tiling has to perform the following works:

• Measuring and cutting of tile and marble

• Cutting and shaping of tile to fit around corners, obstacles and into odd spaces by using hand and power tools.

• Arrangement of tiles according to design drawings

• Preparing and applying mortar and adhesives

• Installing tile in a planned area

• Applying grout and sealants

• Support team to complete assigned task

• Plan and organise task

• Follow health and safety guidelines while working at construction site

Mason Tiling is expected to perform the following responsibilities while performing the task at work place:

1. Select and use levels, squares and straight edges to align and straighten the tiles.

2. Determine and implement the best layout for a desired pattern of tile.

3. Select and use hand and power tools for cutting and shaping tiles to fit around difficulties, odd spaces and corners.

4.   Measure and mark areas to be tiled.

5.   Place and fix tiles in place using mortar and trowel.

6.   Create a bed for the tiles with the help of brush, trowel and screed and mix, apply, and spread plaster, concrete, mortar, cement, mastic, glue or other adhesives.

7.   Lay & fix the tiles as per layout.

8.   Finish and dress the joints and wipe excess grout from between tiles using damp sponge.

9.   Check the line, level and alignment of tiling work.

10.   Follow safety, housekeeping and waste disposal practices at the workplace.

11.   Communicate effectively with subordinates and seniors.

12.   Plan and organise work to achieve desired outcomes.

1.3.2 Personal attributes for job role of mason tiling

A mason tiling in addition to his technical skills should also possess certain personal qualities as well. Mason Tiling should:

• Ability to work in a well-organized and accurate manner;

• Awareness of safety issues ,especially when working at heights;

• Ability to work as a part of team;

• A good level of fitness;

• Awareness of personal hygiene;

• Hard working and reliable;

• Courteous and dedicated;

• Good Communication Skills.

1.3.3 QP and NOS details for mason tiling

A Qualification Pack (QP) consists of a set of National Occupation Standards (NOS). NOS specify the standard competency a worker must achieve when carrying out a function in the workplace. The National Skills Qualifications Framework (NSQF) provides the description of professional and functional knowledge and skill along with the responsibility that a person must display for any given competency level. The NSQF describes a total of 10 levels, level 1 being entry level the least complex and levellD being the top most level.

This programme is based on qualification pack called Mason Tiling. The qualification pack code for Mason tiling is CON/QDlD4. Under Mason Tiling QP there are five NOSs which detail the functions to be performed at work site.

NOS CODE	Major Function/Task
CON/NOllS	Lay and fix tiles both horizontally and vertically on wall and floor
CON/N01l6	Apply grouts and sealants for flooring and cladding works
CON/N800l	Work effectively in a team to deliver desired results at the workplace
CON/N8002	Plan and organize work to meet expected outcomes
CON/N900l	Work according to personal health, safety and environment protocol at construction site

1.3.4 Career path for mason tiling
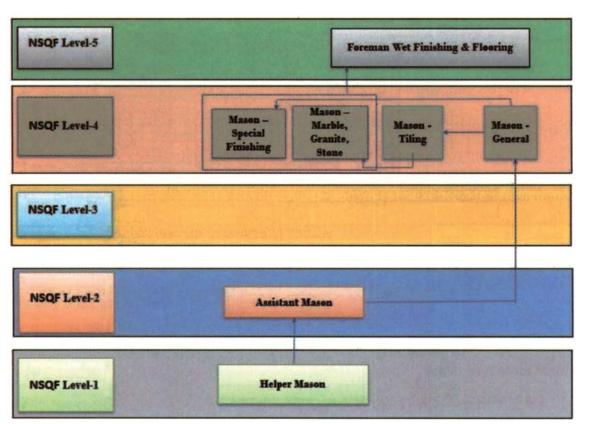
Fig 1.3.3: Career progression for masonry occupation

Education & work experience for Mason Tiling

Mason Tiling	Preferably 5th standard	2 years site experience as a certified General Mason

Education & work experience required for further career progression for mason tiling		
Job role	**Education**	**Experience**
Mason - Marble, granite, stone	Preferably 8th standard	2 years site experience as a certified Mason Tiling
Foreman wet finishing and flooring	Preferably 10th standard	3 years site experience as a certified Mason Special Finishes/Mason Marble, Granite and Stone.

UNIT 1.4: Training for mason tiling

Unit Objectives 🎯

At the end of this unit, you will be able to:

1.	Understand the purpose of training;

2.	Know about mode and duration of training program; and

3.	Understand the benefits of training skill card & certification.

1.4.1 Mode and duration of training

The training program is developed to impart specific skills to individuals who wish to work as a Mason Tiling. The training program is based upon qualification pack & National Occupation Standard for Mason tiling.

•	Classroom sessions

•	Practical sessions

Fig 1.4.1: Classroom session

Fig 1.4.2: Practical session

The duration of training is around 400 Hrs including both classroom and practical sessions.

1.4.2 Benefits after training

The training program will enable an individual to:-

• Identify, shift and stack various materials, tools and equipment used in tiling works

• Measure and mark tiles

• Perform sorting and cutting of tiles
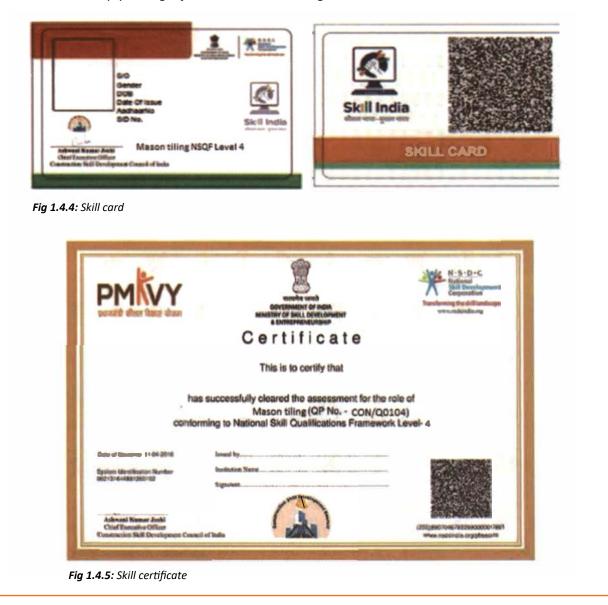
- Lay & fix tiles on wall and floor as per industry requirement.
- Plan and organize working procedures within a team.
- Communicate effectively
- Work according to personal health, safety and environment protocol at construction site.

Fig 1.4.3: Marking as per level

1.4.3 Skill card and certification

After successful completion of training and passing the assessment you will be issued a certificate. This will get you an employment as a mason tiling in construction companies or independently. This certificate will help you to get job and earn better wages than an un-certified workmen.

Fig 1.4.4: Skill card

Fig 1.4.5: Skill certificate

2. Generic Mathematical Skills

Unit 2.1- Unit conversion and measurement

Unit 2.2 - Basic geometrical shapes and its properties

Unit 2.3 - Pythagoras theorem and its application

Key Learning Outcomes

At the end of this module, you will be able to:

1. Explain brief on metric system of measurement;

2. Explain briefly inch system of measurement;

3. Perform basic arithmetic calculations;

4. Know about basic geometrical shapes;

5. Calculate area, volume and perimeter of different shapes;

6. Know about Pythagoras theorem;

7. Perform basic calculations using Pythagoras theorem.

8. Calculate problems using trigonometric functions.

UNIT 2.1: Unit conversion and measurement

Unit Objectives ◎

At the end of this unit, you will be able to:

1.   Explain brief on metric system of measurement; and

2.   Understanding inch system of measurement.

2.1.1 Different System of Measurement

There are two systems of measurement used are:

• Metric MKS system; and
• Inch/FPS system.

Metric System	Inch System
1. It is based on meter as the standard unit of measurement.	1. It is based on the foot as the standard unit of measurement.
2. A meter contains 10 equal parts called decimeter.	2. A foot is divided into 12 similar parts called inches.
3. Decimeter is divided into 10 parts called centimeters and centimeter is divided into 10 parts called millimeters.	3. Inch system does not have decimal based benefit of the Metric System.
	4. Fractions of foot cannot be written as decimal inches.
4. Most usually used system of measurement in the world.	5. For example, in the metric system 5 millimeters = 0.5 centimeters = 0.05 decimeters = 0.005 meters. But 5 inches = 0.416667 which is feet = 0.138889 yards and so on.

Table 2.1.1: *Metric system and Inch system*

2.1.2 Metric system

This system is much easier. It consists of a series of basic units corresponding to mass, distance and volume and utilizes prefixes to denote multiples of unit being used.

Basic Unit	Measuring
Metre/meter	Distance
Kilogram	Mass
Litre/liter	Volume

Table 2.1.2: Basic metric system units

The prefixes and what they mean are:

Prefix	Symbol	Number
Giga-	G	1,000,000,000
Mega-	M	1,000,000
Kilo-	K	1,000
Hecto	H	100
Deca-	D	10
(none)		1
Deci-	D	0.1
Centi-	C	0.01
MiIIi-	M	0.001

Table 2.1.3: Metric system units prefix and their meaning

2.1.3 Inch system

Length or distance

Lengths and distances are measured in inches, feet, yards and miles:

12 inches = 1 foot

3 feet = 1 yard

1760 yards = 1 mile

2.1.4 Conversion between metric and inch systems

There are various approximations used for conversion of units. For example:

- 1 meter is approximately equal to 1 yard.
- 1 mile is approximately equal to 1.5 KM's and a KM is approximately equal to 2/3 of a mile.
- 2 pounds (Ib) make up 1Kg.)

Weight, mass, length, volume, and t   emperature used for measurement conversions.

Metric to Imperial Conversion chart		
Convert	**To**	**Multiply by:**
Kilometers	Miles	0.62
Kilometers	Feet	3280.8
Meters	Feet	3.28
Centimeters	Inches	0.39
Millimeters	Inches	0.039
Liters	Quarts	1.057
Liters	Gallons	0.264
Milliliters	Ounces	0.0338
Celsius	Fahrenheit	(Temperature (C) + 32)*9/5
Kilogram	Tons	0.0011
Kilogram	Pounds	2.2046
Grams	Ounces	0.035
Grams	Pounds	0.002205
Milligrams	Ounces	0.000035

Table 2.1.4: *Conversion from metric to imperial system*

Imperial to Metric Conversion chart		
Convert	**To**	**Multiply by:**
Fahrenheit	Celsius	(Temperature (F) - 32)*5/9
Inches	Meters	0.0254

Inches	Centimeters	2.54
Inches	Millimeters	25.40
Feet	Meters	0.30
Yards	Meters	0.91
Yards	Kilometers	0.00091
Miles	Kilometers	1.61
Tons	Kilograms	907.18

Table 2.1.5: *Conversion from imperial to metric system*

Notes

UNIT 2.2: Basic geometrical shapes and its properties

Unit Objectives ◎

At the end of this unit, you will be able to:

1. Perform basic arithmetic calculations;
2. Know about basic geometrical shapes; and
3. Calculate area, volume and perimeter of different shapes.

2.1.1 Basic mathematical calculations

The same thing can be explain by the use of basic mathematics:

Symbol	Words used
+	Addition, Plus, Sum, Increase
-	Subtraction, Minus, Less, Decrease, Difference, Deduct
x	Multiplication, Product
÷	Division, Quotient

Table 2.2.1: Basic mathematical symbols and formations

Addition

... To make a new total by bringing two or more numbers (or things) together.

"Addends" are the numbers which are to be added together:

$$8 + 3 = 11$$

Subtraction

... involves taking one digit away from another digit.

$$8 - 3 = 5$$

Multiplication

.... (In its simplest form) repeated addition.

Below we see 3+3+3 (three 3s) make 9:

$$\textbf{6 x 3 = 18}$$

We can also multiply by fractions or a decimal, which is also repetitive addition:

Example: 3.5 x 5 = 17.5
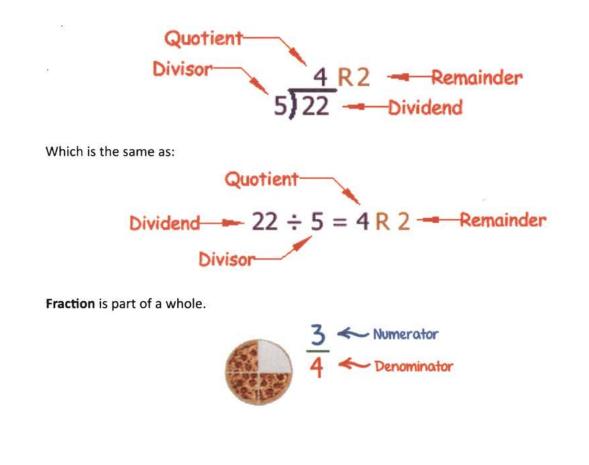
which is 3.5 lots of 5, or 5 lots of 3.5

Division
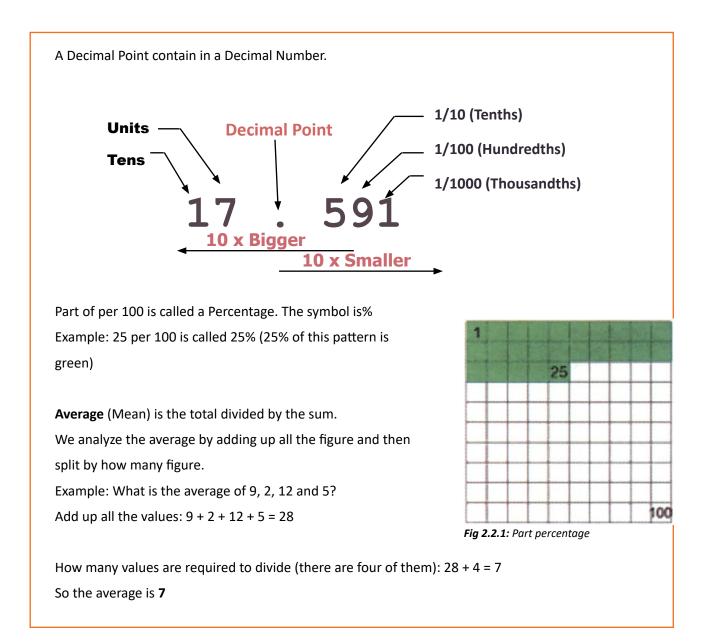
... is splitting into equivalent parts or groups. Division is the result of "fair sharing".

It has its own singular words to remember.

For example, take the simple query of dividing 22 by 5. By 2 left over and the answer is 4. See the important words:

Which is the same as:

Fraction is part of a whole.

It is written with the lowest portion (the denominator) telling how many parts the whole is separated into, and the top portion (the numerator) telling how many portion we have.

A Decimal Point contain in a Decimal Number.

Units

Tens

Decimal Point

1/10 (Tenths)

1/100 (Hundredths)

1/1000 (Thousandths)

$$17 \, . \, 591$$

10 x Bigger

10 x Smaller

Part of per 100 is called a Percentage. The symbol is%

Example: 25 per 100 is called 25% (25% of this pattern is green)

Fig 2.2.1: Part percentage

Average (Mean) is the total divided by the sum.

We analyze the average by adding up all the figure and then split by how many figure.

Example: What is the average of 9, 2, 12 and 5?

Add up all the values: 9 + 2 + 12 + 5 = 28

How many values are required to divide (there are four of them): 28 + 4 = 7

So the average is **7**

2.2.2 Area, volume and perimeter of geometrical shapes

	Perimeter	cm	m	ft.
Units	Area	cm²	m²	Sq. ft
	Volume	cm³	m³	Cub. ft

Table 2.2.2: Area, volume and perimeter units
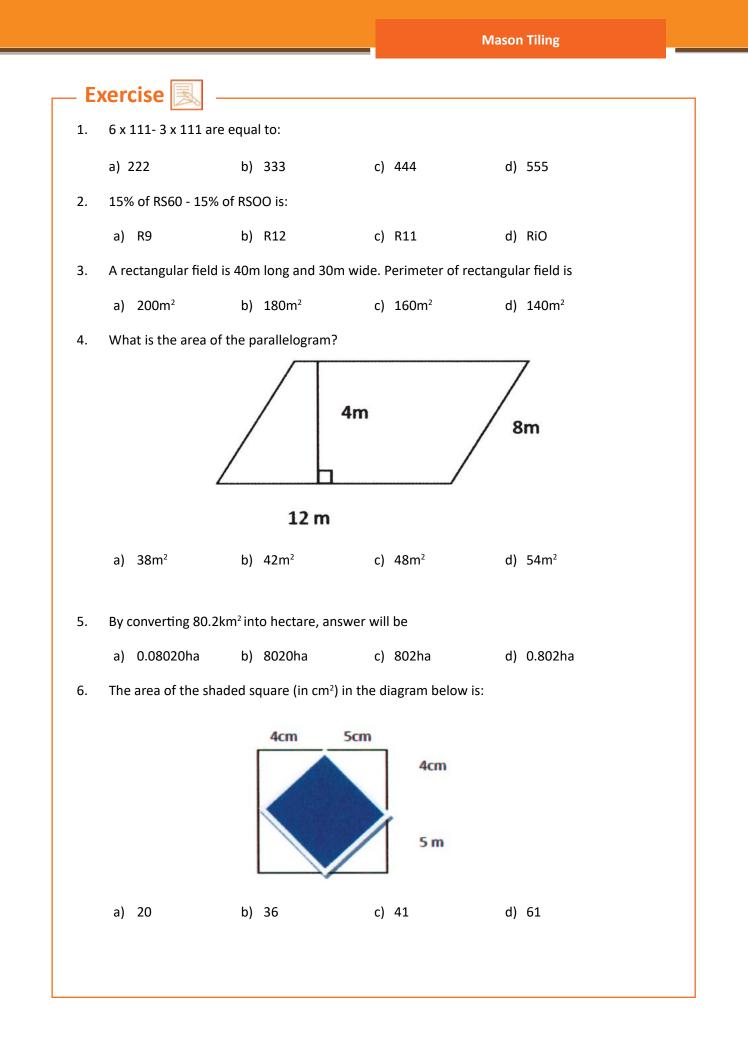
Polygon/ Circle	Perimeter(P)	Area(A) Sides	Sides
Triangle	$P = b+c+d$	$A = 1/2ab$	a=altitude J b=base f c,d=sides
Trapezoid	$P = bl + b2 + c + d$	Area $= 1/2a(bl + b2)$	a= altitude bl,b2=base '. c,d=sides
Parallelogram	$P= 2b + 2c$	Area $= b \times h$	a= altitude b=base c= side
Rhombus	$P = 4s$	$A= a \times s$	a= altitude s=side

Rectangle	$P = 2l + 2w$	$A = l \times w$	
	w	w	l=length
		l	w=width
Square	$P = 4s$	$A = s^2$	
	s	s	s= side length
Regular polygon	$P = ns$	$A = 0.5a \times n \times s$	
pentagon has five sides	s	a, s	a = length
hexagon has six sides			s = side length
heptagon has seven sides	P=5s	A=2.5 a x s	n = No. of sides
	P=6s	A= 3.0 a x s	n=5
octagon has eight sides	P=7s	A= 3.5 a x s	n=6
	P=8s	A= 4.0 a x s	n=7
nonagon has nine sides	P=9s	A=4.5 a x s	n=8
	P=10s	A=5.0 a x s	n=9
decagon has ten sides			n=10

Circle	C = Circumference $C = \pi d$	A = Area $A = \pi r^2$	r= radius d= Diameter

Geometric Shape	Surface Area	Volume	Sides
Cube	A= 2B + Ph SA= $2(s^2) + (4s)s = 6s^2$	Volume = Bh Volume = s^3	**s** = side length **B** = area of the base **P** = perimeter of the base **h** = height
Cylinder	SA= $2(\pi r^2) + (2\pi r)h$	V= Bh V = $\pi r^2 h$	**B** = area of base **P** = perimeter of base **r** = radius of circle **h** = height
Cone	SA= $\pi r^2 + \pi rs$	V = 0.33 Bh V = 0.33 $\pi r^2 h$	B = area of base r = radius of circle h = height s=slant height

Sphere	$SA = 4\pi^2$	$V = 1.33\pi r^3$	r = radius of circle

Exercise

1. 6 x 111- 3 x 111 are equal to:

    a) 222   b) 333   c) 444   d) 555

2. 15% of RS60 - 15% of RSOO is:

     a) R9   b) R12   c) R11   d) RiO

3. A rectangular field is 40m long and 30m wide. Perimeter of rectangular field is

    a) 200m^2 b) 180m^2 c) 160m^2 d) 140m^2

4. What is the area of the parallelogram?

    a) 38m^2 b) 42m^2 c) 48m^2 d) 54m^2

5. By converting 80.2km^2 into hectare, answer will be

    a) 0.08020ha   b) 8020ha   c) 802ha   d) 0.802ha

6. The area of the shaded square (in cm^2) in the diagram below is:

    a) 20   b) 36   c) 41   d) 61

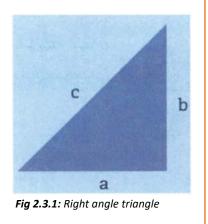## UNIT 2.3: Pythagoras theorem and its application

Unit Objectives ⊚

At the end of this unit, you will be able to:

1.   Know about Pythagoras theorem; and

2.   Perform basic calculations using Pythagoras theorem.

2.3.1 Pythagoras theorem

According to Pythagoras's theorem, the total of the squares of two edges of a right triangle is equivalent to the square of the hypotenuse. If one side of right triangle is a, the other part is b and hypotenuse is given by c, then as per pythagoras's theorem

$a^2 + b^2 = c^2$

The length of one part of a right triangle can be calculated if the length of the other two parts of triangle is known.

Fig 2.3.1: Right angle triangle

2.3.2 Applications of Pythagoras theorem

Finding the length of the Hypotenuse

$a^2+b^2=c^2$ Pythagorean Theorem

$5^2+12^2=c^2$ Substitute known values for a and b

$(25+144)=c^2$ Simplify

$169=c^2$ Combine like terms
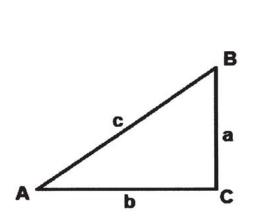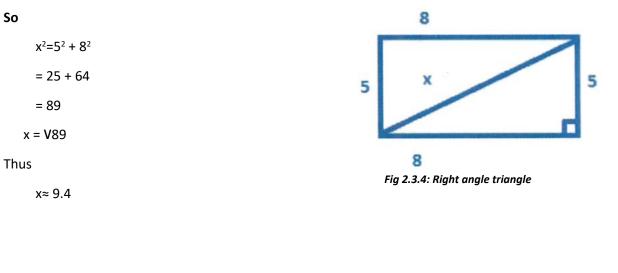
$\sqrt{169}= \sqrt{c^2}$

$13= c$

Fig 2.3.2: Hypotenuse length measurement

Pythagoras Theorem is used to find the length of the hypotenuse of a right triangle, if the length of the other two sides of a right triangle is known. In other words, if we know the lengths of a and b, we can find c.

Finding side Length

To find the side length of a right triangle's if we are given measurements for the hypotenuse and the one side we can also use the Pythagorean Theorem. Consider the right triangle below:

$a^2+b^2=c^2$	Pythagorean Theorem
$a^2+6^2=7^2$	Substitute known values for b a
$a^2+36=49$	Simplify
$a^2+36-36=49-36$	Isolate the term
$a^2=13$	
$a=\sqrt{13}$	Take square root of both side
$a=3.61$	$\sqrt{13}$ is approximately 3.61

Fig 2.3.3: Right angle triangle leg measurement

Solving for the Length of the Diagonal

Find the length of the diagonal of a rectangle that is 8 centimeters (cm) long and 5 cm wide. Let x be the unknown length of the diagonal:
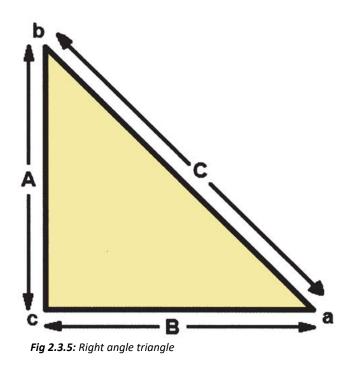
So

$$x^2=5^2 + 8^2$$
$$= 25 + 64$$
$$= 89$$
$$x = \sqrt{89}$$

Thus

$$x \approx 9.4$$

Fig 2.3.4: Right angle triangle

2.3.3 3-4-5 Method

Method for Squaring Corners
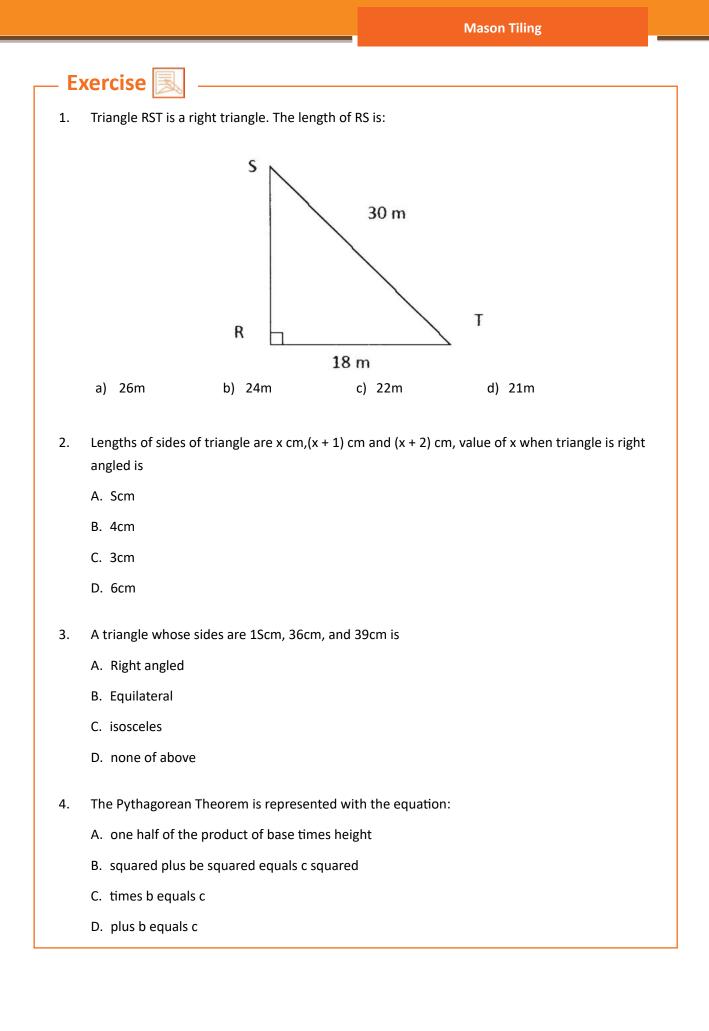
3-4-5 method is used as a method for squaring corners.

Introduction to 3-4-5 rule

The 3-4-5 rule is based on the Pythagorean Theorem. The sum of the squares of the lengths of the legs of a right triangle ("A and "B" in the triangle shown below) is equal to the square of the length of the hypotenuse ("(").

Fig 2.3.5: Right angle triangle

Application of 3-4-5 rule to layout a wall.

- On one side of corner measure 3'-0' and make a mark
- On the op·posite side ofthe corner measure 4'-0' and make a mark
- Measure between the two marks when this distance equals 5'-0' the two walls are 90 degrees to each other (i.e. square).
- For larger layouts any multiple of the 3-4-5 rule can be used (i.e. 6-8-10 etc.)

Exercise

1. Triangle RST is a right triangle. The length of RS is:

   a) 26m   b) 24m   c) 22m   d) 21m

2. Lengths of sides of triangle are x cm,(x + 1) cm and (x + 2) cm, value of x when triangle is right angled is

   A. Scm

   B. 4cm

   C. 3cm

   D. 6cm

3. A triangle whose sides are 1Scm, 36cm, and 39cm is

   A. Right angled

   B. Equilateral

   C. isosceles

   D. none of above

4. The Pythagorean Theorem is represented with the equation:

   A. one half of the product of base times height

   B. squared plus be squared equals c squared

   C. times b equals c

   D. plus b equals c

3. Personal health, safety & environment protocol followed at construction sites

CON/N9001

Key Learning Outcomes 💡

At the end of this module, you will be able to:

1. Learn about health and safety requirements in industry;

2, Know about essential elements for safety;

3. Learn about good safety work practices;

4. List the types of hazards involved in construction sites;

5. Follow safety measures and actions to be taken under emergency situation;

6. Describe the uses of fire extinguishers;

7. Explain how to classify fire and fire extinguishers;

8. Explain how safety drills are conducted;

9. Know about safe working practices;

10. Know about PPE;

11. Know about safety precautions while working at heights;

12. Know about accident and incident reporting;

13. Know about housekeeping practices; and

14. Know about waste management

UNIT 3.1: Importance of safety at construction site

Unit Objectives ◎

At the end of this unit, you will be able to:

1. Learn about health and safety requirements in industry;

2. Know about essential elements for safety; and

3. Learn about good safety work practices.

3.1.1 Safety in Construction site

The health, safety and protection of employees, equipment and the environment are of serious concern in every industry of hazardous nature. The health and safety of employees is crucial since it affects both economic and social factors.

The nature of various types of accidents is shown by an iceberg of incidents (Fig 3.1.1).
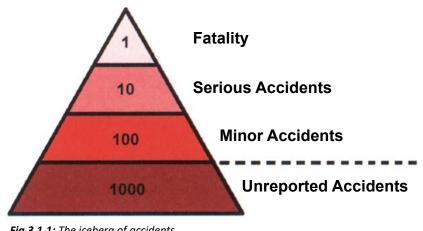

Fig 3.1.1: The iceberg of accidents

- **Fatality:** A disaster resulting in death.
- Serious accidents: An accident that causes someone to die or endure serious injuries.
- Minor accidents: An accident that causes minor injuries and pains in the body.
- Unreported accidents: An accident which is not reported to management or ignored.

3.1.2 Essential elements necessary for safety

The following are the essential elements which are necessary for implementation of safety culture:

• Safety consciousness among the top management.
• Communication plan and a participatory way of working from the employees.
• Best practices in safety
• Safety organization structure, which is well defined by the management and well understood by everyone.
• Training programs

3.1.3 Good safety practices

Good safety practices include the following:

Fig 3.1.2: Good safety practice

• Avoiding unsafe behavior and motivating others to follow safety measures;
• Take note of emergency exits, evacuation points and follow all emergency evacuation measures;
• Keep the site hygienic and maintain proper housekeeping at site;
• Participating in emergency safety drills, safety meetings and refresher safety training programs which include discussion on various investigated accidents;
• Wearing personal protective gears while working at construction site.

UNIT 3.2: General safety at site

Unit Objectives ◎

At the end of this unit, you will be able to:

1.   List the types of hazards involved in construction sites;

2.   Discuss the safety control measures and actions to be taken under emergency situation;

3.   Describe the uses of fire extinguishers;

4.   Explain how to classify fire and fire extinguishers; and

5.   Explain how safety drills are conducted.

3.2.1 Hazard

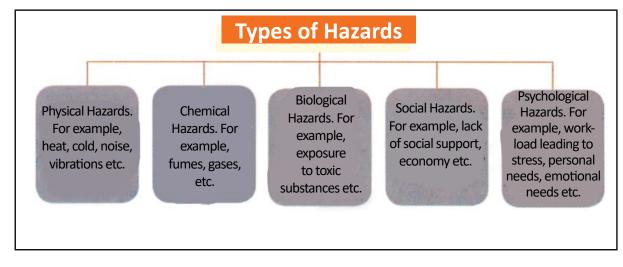A hazard is something that has the potential to cause injury, disease or death at a workplace. A slippery floor could cause somebodies fall causing injury.

There are a number of aspects to the development of a safe workplace environment:

• the development of policies
• the development of consultative processes
• Hazard identification, assessment and control.

Types of Hazards

Hazards for construction workers can be classified into:

Types of Hazards

| Physical Hazards. For example, heat, cold, noise, vibrations etc. | Chemical Hazards. For example, fumes, gases, etc. | Biological Hazards. For example, exposure to toxic substances etc. | Social Hazards. For example, lack of social support, economy etc. | Psychological Hazards. For example, work-load leading to stress, personal needs, emotional needs etc. |

Occupational hazards at a construction site can be categorised into two types:

Occupational accidents: Accidents that take place due to lack of safety measures. These accidents may be fatal. Some of the occupational hazards at construction site are listed below:
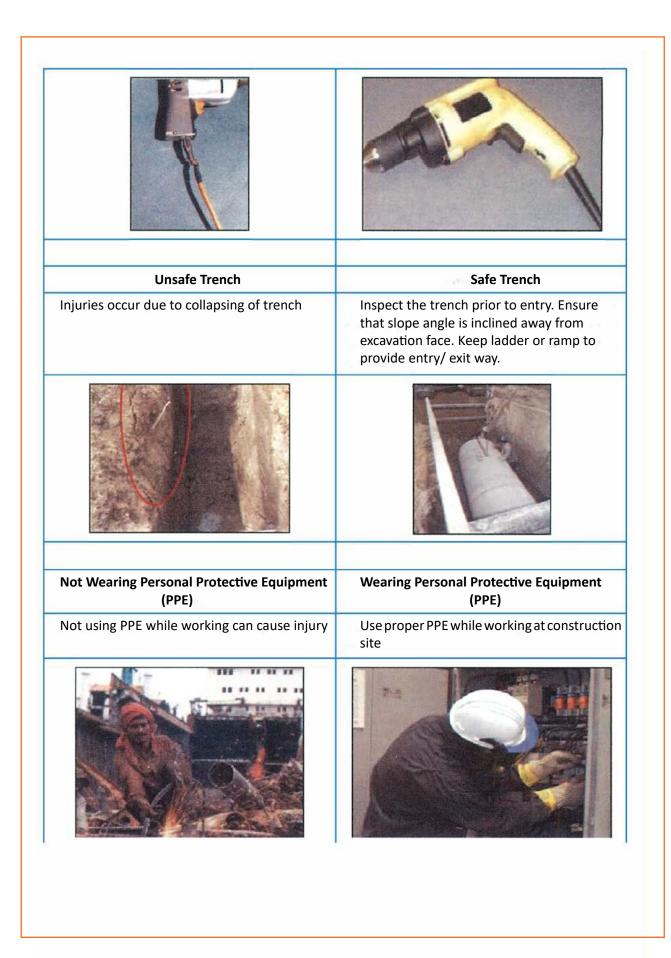
For example:

1. Injury or cuts by tools and equipment

2. Slips and Falls by ladders or unsafe slippery workplace

3. Bad lighting arrangement at site

4. Lack of proper ventilation

5. Use of improper PPE

6. Use of improper tools and equipment

7. Unexpected atmospheric conditions

8. Falling from a height

9. Fire

10. Unsafe or damaged scaffold

11. Electric shock

12. Accident resulting from not wearing PPE

13. Bites from insects or poisonous snakes at site

14. Accidents involving heavy vehicles at site

15. Poor housekeeping

16. No overhead protection

17. No installation of safety net

18. Incorrect ways of waste disposal

19. Unsafe excavation site

20. Incorrect methods lifting, loading and transportation.

3.2.2 Hazards at construction site

Some of the hazards at a construction site and their preventive measures:

Hazards at Construction site	Preventive Measures
Damaged Tools and Equipment	**Safe Tools and Equipment**
Injury or cuts by unmaintained tools and equipment	Ensure proper maintenance of tools and equipment and check for any defects

Unsafe Trench	**Safe Trench**
Injuries occur due to collapsing of trench	Inspect the trench prior to entry. Ensure that slope angle is inclined away from excavation face. Keep ladder or ramp to provide entry/ exit way.

Not Wearing Personal Protective Equipment (PPE)	**Wearing Personal Protective Equipment (PPE)**
Not using PPE while working can cause injury	Use proper PPE while working at construction site

Injury due to spillage	**Awareness to avoid Spillage & Slip**
Spillage on floor may cause slip, trip, fire and other accident.	Workers must avoid any unsafe act which may lead to spillage or cause an injury or accident thereoff
Poor Lighting Arrangement	**Illuminated workplace**
Dimly lit areas	Keep workplace Illuminated and airy
Falling from height	**Wearing Safety Harness**
Not using safety harness may lead to fall from height	Wear safety harness while working at height

Fire Due to Unsafe Practices	Safe Practices
Exposure to damaged wires, electrical cords, may lead to fire hazard.	Replace worn out or damaged wires or cords promptly. Ensure that the extension cords and electrical devices are grounded.

Unsafe Scaffold or Ladder	Use of safe ladder/ scaffold
Unsafe ladder or scaffold mat be rusted, broken or may not have passed safety inspection .Use of such a ladder/scaffold may cause injury due to fall of man or material.	Always use the scaffold or ladder that has cleared safety inspection and is not damaged or rusted.

Electrical Shocks	Use Safety equipment
Danger of electric shocks from damaged electrical equipment and wiring	Use Safety equipment like Ground Fault Circuit Interrupter{GFCI) to protect from shocks

Poor Housekeeping	Good Housekeeping
Scattered tools and equipments on the floor, passages or stairways may lead to small accidents.	Arrange and store the material at proper place to avoid falls and trips.
Lack of Safety Measures	**Follow Safety Measures**
Danger of object falling from height	Use safety net as a protection against object falling from height

3.2.3 Common hazard signs

Fig. 3.2.1: Common hazard signs

3.2.4 Dealing with emergency situations

Emergency safety measures helps us to minimise the suffering of the workers and economic losses that results due to emergencies.

Construction site needs emergency plans to be executed for the safety of the men and material. Special procedures are needed for emergencies such as injuries, explosion, natural calamities like flood and earthquake, fire outbreak, social unrest, poisoning, electrocution, chemical spills and release of radioactivity.

As a mason tiling at a construction site, you may have to encounter emergency situation at any time. Neither they should be ignored nor should you panic. In case of an emergency,

- stay calm;
- do not panic;
- ensure people around you also stay calm
- Inform your immediate supervisor so that the victim receives first aid, or if you need to stay with the victim delegate someone to call your supervisor or call emergency services at site;
- Safeguard the area so that the further losses are in control like shut down equipment, divert workers, put the fire out, etc.

- Safeguard the area so that the further losses are in control like shut down equipment, divert workers, put the fire out, etc.

- Safeguard accident place, take care that workers are relieved. Ensure no life is in danger and prevent further damage.

If you are asked to report the case to your supervisor, you should provide detailed information about:

- day, date, time, location of the accident/emergency;

- name of the workers and their job titles (if you know them);

- what led to the accident/emergency;

- names of workers who witnessed the accident/emergency;

- conditions around the area where the accident/emergency took place;

- whether the victim(s) had worn PPE at the time of accident/emergency;

- injuries that occurred;

- first aid or any other treatment given to the victim(s);

- damage caused to the worker or the equipment that the worker was using.

Fig. 3.2.2: Dealing with emergency situation

3.2.5 Classification of Fire and Fire Extinguishers
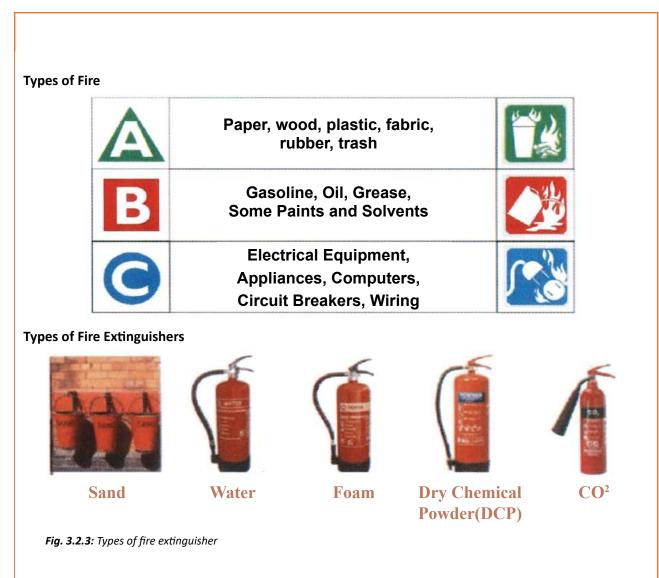
At a construction site, fire may be caused by:

1. heating of metal;

2. electrical heating or short circuits;

3. loose fires caused by welding or smoking;

4. ignition of combustible material;

5. chemical fires;

6. lack of proper housekeeping and/or accumulation of waste.

Tips to Deal with Fire

• Keep the work area clean.

• Containers with remnants of flammable materials must be filled with water.

• Never wear inflammable material like nylon at work.

• Ensure there are no unattended cables or wires lying around the work area.

• Avoid using power tools near combustible materials.

• All time Keep an eye on sparks and metals falling off at all times.

• Immediately report about any emergency situation that may cause fire to your senior at work.

In Case of Fire

• Douse the fire, if it is small, with a fire extinguisher.

• If the fire is big and growing, call the fire brigade.

• Move towards the fire exit. Take coworkers along.

• Ensure there is no panic in and around the area.

• All time Keep an eye on sparks and metals falling off at all times.

• Immediately report about any emergency situation that may cause fire to your senior at work.

Types of Fire

A	Paper, wood, plastic, fabric, rubber, trash	
B	Gasoline, Oil, Grease, Some Paints and Solvents	
C	Electrical Equipment, Appliances, Computers, Circuit Breakers, Wiring	

Types of Fire Extinguishers

| Sand | Water | Foam | Dry Chemical Powder(DCP) | CO_2 |

Fig. 3.2.3: Types of fire extinguisher

Using the Right Fire Extinguisher

Choosing the right extinguisher can prevent property damage and save lives				
Type of fire extinguisher → Type of fire ↓	Water	Foam	CO_2	Dry Chemical
A Paper, wood, plastic, fabric, rubber, trash	✔	✔	✘	✔
B Gasoline, Oil, Grease, Some Paints and Solvents	✘	✔	✔	✔
C Electrical Equipment Appliances Computers	✘	✘	✔	✔

Method of Using a Fire Extinguisher

Pull the extinguishers safety pin

Aim the extinguishers at the source of the flames

Squeeze the trigger and hold it

Sweep the source of the flames until the extinguisher run dry

Fig. 3.2.4: *How to use fire extinguisher*

Precautions during fire outbreak

S no.	Instruction
1	On noticing a fire, immediately start shouting "fire" at top of your voice. Do not wait for the automatic fire alarms to start ringing.
2	Take a fire extinguisher
3	Use extinguisher as per fire type: • General Fire :- Water & Co2 fire extinguishers • Oil Fires: - Foam extinguishers • Electrical Fires :- Co2 Fire extinguishers.
4	Make sure supply is off from the mains in case of electrical fire.
5	Cut the power from the main source instead of switching off electrical equipment.
6	Do not panic and alert the building fire department.
7	If fire seems to be going haywire call the fire brigade immediately.
8	Make sure that all the equipment related to fire fighting and water sprinklers have started functioning.
9	First priority should be to save people. Help others to safely get out of the floor
10	The nearest hospital should be alerted regarding the fire outbreak so that they are prepared to treat serious burn injuries

3.2.6 Tool Box talks and Safety Drills

Tool box talk

- Toolbox meetings are informal safety meeting conducted at construction site prior to commencement of work.
- Toolbox meetings are conducted for exchange of information regarding hazards/controls, incidents/accidents, work processes and company procedures.
- Toolbox meetings need to be conducted for 10-15 minutes on regular basis.
- Toolbox meetings are shorter than safety meetings.
- The rate of occurrence of such meetings depends on the strength of the team & size and nature of hazardous activities at workplace.
- The nature of hazardous activity decides whether meeting is required daily or weekly/fortnightly.

Importance of Toolbox Talks

- Helps in informing workers about company norms and changes in norms.

Fig. 3.2.5: Toolbox Talks

- Useful for finding out new hazards and reviewing the existing hazards.
- Useful for preparing/evaluating hazard controls.
- Useful for discussing/evaluating accident and incident data.
- Ensures effective communication between teams.
- Helps in preparing/analyzing work processes.

Safety drills are conducted at regular intervals at construction site to keep workmen aware of the emergency situations. Safety drills are situations where a fake emergency is announced. Workmen are asked to follow the emergency evacuation plan, prescribed by the organization. This helps in familiarizing workmen with emergency situation and act according to the plan. As part of the safety drill, workmen are expected to:

Fig. 3.2.6: *Demonstration on fire fighting*

- Raise the alarm by smashing the glass cover of the nearest break-glass alarm unit.

- Keep calm and ensure no one around panics.

- Turn off all electrical apparatus except lights.

- If possible, close doors around the fire area to stop it from spreading.

- Follow proper evacuation procedures. Leave building/site immediately.

- If it's dark and smoky, get down on your hands and knees and crawl to the nearest exit by counting the number of the door.

- If possible hold onto your nose with a wet towel or handkerchief;

- Be aware of the hot exit door and watch out for the thick smoke in the staircase;

- If the staircase is free from smoke, walk down by following the directional signs and handrails;

- Gather at the designated assembly point.

Exercise

1. The establishment of a safe workplace is:
   a. Ethically and socially responsible
   b. Not cost effective
   c. A priority in all organizations.
   d. Ethically and socially irresponsible.

2. In a health and safety context, a hazard is:
   a. Anything with the potential to result in an injury or illness.
   b. The likelihood of someone being injured in the workplace.
   c. Anything that could result in a physical injury.

d. Anything that could result in a psychological injury.

3. Once you have spotted a hazard you must:

    a. Report it to your boss

    b. Leave it as someone else will fix it eventually

    c. Bring your own toolbox to work and fix it yourself

    d. None ofthe above

4. From the following options, what is the best way to control hazards in the workplace?

    a. Replace the hazard for a less risky option

    b. Eliminate the hazard completely from the workplace

    c. Use personal protective equipment (PPE)

    d. Have rules to help people avoid hurting themselves

5. Identify the Sign

    a. No Entry

    b. No walking in the workplace

    c. No posing allowed

    d. No strolling at this workplace

6. The most common mechanical equipment injuries are to the:

    a. body and arms

    b. hands and fingers

    c. legs and feet

    d. ears and eyes

7. What is first aid?

    a. Completing a primary survey

    b. The first help given to the victim of an accident

    c. Assessing a victim's vital signs

    d. Treating a victim for shock

UNIT 3.3: Safety Relevant to Mason Tiling Job Role

Unit Objectives ◎

At the end of this unit, you will be able to:

1. Know about safe working practices;

2. Know about PPE; and

3. Know about safety precautions while working at heights.

3.3.1 Safe Working Practices

Safe working practices should be adopted while working at construction site. This will avoid many hazards, which can lead to injuries, illness and even fitalities of workers.

To prevent injury due to falling from height

- Use harness with safety line when working at height.

- Install and preserve perimeter protection.

- Floor openings should be labelled, covered and secured.

- Use the correct ladder for the task.

- Scaffold should be erected on firm and level ground.

- Walkways should be properly fixed and should be useable.

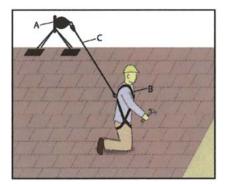- Ensure that there is no obstruction or oil spills on the walkways.

Fig. 3.3.1: Safe working practice

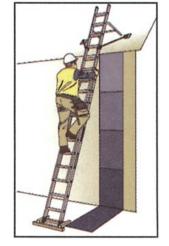*Fig. 3.3.2: Safety working procedure at height*

To prevent injury due to collision/confinement

- Don't work in an area where you can get stuck between moving and stationary objects ..
- It is advisable to wear high visibility clothes near equipment/ vehicles.

Prevent Electrocutions

- Locate and identify utilities priorto commencement of work.
- Maintain a safe distance from power lines and be aware about safe distance requirements.
- Only use those portable electric tools which are grounded or double insulated.
- Worn out, damaged or dilapidated electrical cords or cables should be swiftly changed.
- Ensure all electrical tools and equipments are in safe working conditions and are inspected periodically.

Fig. 3.3.3: Preventing struck-by

Fig. 3.3.4: Preventing electrocution

- Always use protective systems designed for protection from contact with electrical energy.
- Always check and recheck to confirm that the ladders, scaffolds, equipments or materials are not kept within 10 feet of electrical power lines.
- Double check that ladders, scaffolds, equipment or materials never come within 10 feet of electrical power lines.

3.3.2 Personal protective equipment (PPE)

Personal protective equipment are safety equipment which protect a person against hazards. Prior to using a personal protective equipment, it should be ensured that the equipment satisfies the working requirements, is as per required standards, conforms to body shape of user, is user-friendly, and is under regularly maintained.

Personal Protective Equipment

Ear Protection

- Ensure selected ear protectors gives sufficient protection - at least lowers the level of noise around you to below 85 db.
- Protectors should be selected based on the working environment considering how comfortable and hygenic they are.

Fig. 3.3.5: Workmen

Fig. 3.3.6: Ear plugs

Fall protection

• Workers should have knowledge of potential hazards aganist falling, how to protect themselves and what fall protection measures are required for safety.

• If you are using personal fall arrest systems, check it before wearing, ensure that all components are in good working condition and that the harness properly fits into your body.

Fig. 3.3.7: Harness belt

Eye and Face Protection

• Safety glasses or face shields should be worn to avoid injury to the eye during the various operation like cutting, grinding, nailing, working with concrete and/or harmful chemicals and flying particles.

• Eye and face protectors are selected based on identified hazards.

• Safety glasses or face shields should also be worn while working on energized electrical systems or when exposed to electrical hazards.

Fig. 3.3.8: Eye shields and goggles

Foot Protection

• Construction workers should wear slip and puncture-resistant shoes or boots.

• Safety footwear will provide protection of toes from falling objects and safety while working around heavy equipment.

Fig. 3.3.9: Safety boots

Hand Protection

• For hand protection wear gloves of appropriate size.

• Types of gloves used :

    1. Heavy-duty rubber gloves for concrete work

    2. Welding gloves while welding

    3. Insulated gloves and sleeves when exposed to electrical hazards

Fig. 3.3.10: Hand gloves

Head Protection

Helmets are used for head protection against falling objects, bumping head against objects and accidental head contact with electrical hazards.
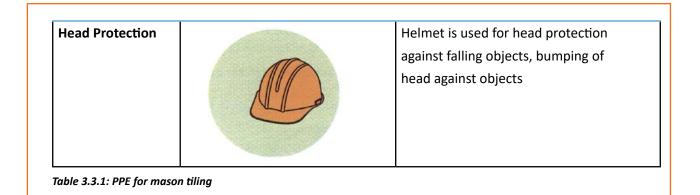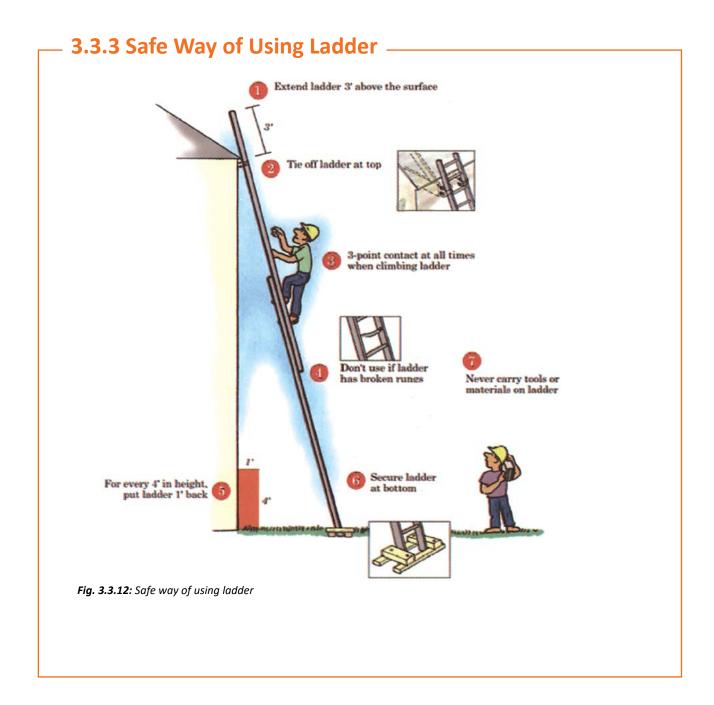

Fig. 3.3.11: Safety helmet

It is advisable to inspect helmets regularly for damage. In case the helmet is subjected to heavy blow or electrical shock, it should be immedieately replaced.

PPE and hazards protection measures associated with bar bending & steel fixer work

Protection	PPE	Hazard Protection Measure
Ear protection		Ear plugs are used to protect ear from damage due to noise generated at counstruction site
Eye protection		Safety goggles should be worn at all times to protect your eyes against flying particles during cutting and grinding.
Fall protection		Use safety belt to avoid trip and fall while working at height
Foot protection		Protection of feet from injuries and strains due to fall of heavy materials, injuries from protruding objects at site.
Hand protection		Thick gloves provide protection to fingers and palms as well as make handling of equipment easy.

Head Protection		Helmet is used for head protection against falling objects, bumping of head against objects

Table 3.3.1: PPE for mason tiling

3.3.3 Safe Way of Using Ladder

Fig. 3.3.12: Safe way of using ladder

Exercise

1. Ear plugs are required to protect ....

2. You have been given a dust mask to protect against hazardous fumes. What should you do?

    (a) Do the job but work quickly

    (b) Do not start work until you have the correct Respiratory Protective Equipment

    (c) Start work but take a break now and again

    (d) Wear a second dust mask on top of the first one

3. If you drop your safety helmet from height on to a hard surface, you should:

    (a) Repair any cracks then carryon wearing it

    (b) Make sure there are no cracks then carryon wearing it

    (c) Work without a safety helmet until you can get a new one

    (d) Stop work and get a new safety helmet

4. Material handling consists of movement of material from

    (a) one machine to another

    (b) one shop to another shop

    (c) stores to shop

    (d) all of the above

5. If you are working above height and over water, what Personal Protection Equipment would you require?

    (a) A harness, lanyard and a life jacket

    (b) A harness, goggles and a life jacket

    (c) Goggles, life jacket and a safety net

    (d) None of the above

6. Which is the cause of electric fire.

    (a) Loose connection

    (b) over loading the wires

    (c) Electric short circuit

    (d) All the above

UNIT 3.4: Accidents and Incident reporting

Unit Objectives ⊙

At the end of this unit, you will be able to:

1.   Know about accident and incident reporting; and

2.   Know about how to write reports properly.

3.4.1 Reporting Accidents

Any accident whether minor or major needs to be reported immediately. All accidents must be documented even if there is minor injury or there is no sign of initial injury.

Reporting and documentation is necessary for the following reasons:

• Reporting helps in rectifying the situation and helps in the prevention offuture occurrences.
• It helps in claiming compensation/approval incase injury causes long term absence from work or leads to death of a person.
• Any accident resulting in a serious injury or death of a worker must be reported for legal purposes.

As a personal responsibility one should be aware of potential hazards and correct reporting processes. If you notice a potentially hazardous situation, it is important that you report it immediately to management as per the organizational procedures.

Concerned reporting authority for reporting the accidents in sequence:

• For minor injuries or any accident first inform the supervisor.
• The supervisor inform the health and safety inspector.
• For fatal accidents report to health and safety inspector or senior management as per organizational procedures and policies.

3.4.2 Reporting format

Always report an accident to management immediately. There should be a form at each workplace that you (or the person involved) and any witnesses can fill out, where possible, otherwise it can be completed by a health and safety representative (HSR) if necessary. The form should cover the following areas:

• Tools/ machines are in unsafe condition.

• Machines are not working properly.

• PPE are not available.

• An employee is not using PPE.

• If you find that someone is operating machine in an incorrect manner.

• Tools and tackles are not stored appropriately.

• Electrical fittings are not properly connected and insulated.

• Hazardous materials are not kept at designated place with proper marking.

Problems in your work should not affect others productivity and problems in others work should not affect your productivity.

Exercise

1. Assume you got an accident at work place on your knees. File a report and inform the management about the accident.

    _____

    _____

    _____

2. What is an important area for attention if an on-site investigation is conducted after an accident?

    a. That the documents present at the site are retrieved.

    b. That this investigation be conducted before the government's Health and Safety Inspection Service is informed.

    c. That the areas for improvement are discussed with the site's owner.

    d. None of these

UNIT 3.5: Housekeeping and waste disposal on site

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Know about housekeeping practices; and

2. Know about waste management.

3.5.1 housekeeping Practices

Workplaces hazards can be reduced by effective housekeeping, thus helping in safe and proper completion of a job. Poor housekeeping result's in frequent accidents.

Housekeeping doesn't mean only cleanliness. Housekeeping includes keeping work areas tidy and organized; keeping floors/ walkway tidy to avoid accident; safe disposal of waste materials (paper, cardboard) and prevention of fire hazards.

Housekeeping is a continuous process and requires participation of everyone at site. Good housekeeping prevents accidents and illnesses from occurring while working at construction site.

3.5.2 Purpose of Workplace Housekeeping

Proper housekeeping is essential for avoiding accidents measurely following types of accidents by proper housekeeping:

- Injury due to falling objects.
- Tripping over loose objects/debris on stairs, floor and walkways.
- Slipping on wet, greasy floor.
- Cutting or tearing of skin due to protruding nails

Fig 3.5.1: Housekeeping

3.5.3 Elements of an Effective house Keeping

Dust and Dirt Removal

Use proper exhaust ventilation systems for removal of dust/dirt from workplace.

Fig 3.5.2: Dirt cleaning

• Wet floor before sweeping .

Uses of Aisles and Stairways

• Ensure and encourage people to use stairways

• Shortcut through hazardous areas to be avoided.

Spill Control

Ensure machines and equipment are cleaned regularly and maintained periodcially. Place drip pans and guards in places where oil spiils can occur. Ensure spill is cleaned right away.

Fig 3.53: Spill cleaning

Tools and Equipment

Tools and equipments should be placed in the tool room, tool rack, and yard or on the bench appropritaley. Tools should be held with appropriate fixtures on marked locations, should be labeled to ensure organized arrangement. Placing and storing of tools at the designated place is very important.

Fig 3.5.4: Tool storage

Waste Disposal

Good housekeeping requires regular collection of waste, grading and sorting of scrap. Segregation of recyclable materials from waste

For systematic waste gathering and disposal, place the bin containers near the place where waste is produced.

Fig 3.5.5: Waste management

Storage

Provide at least one meter of clear space for storing materials from the sprinkler heads.

Materials should be stored away from fire equipment, stairs, aisles, exits, emergency showers, or first aid stations. Clear markings should be provided in storage areas.

Fig 3.5.6: Material storage

3.5.4 Housekeeping at site

- Clear gangways, stairways, passageways and access ways such that their is no abstraction in movement.
- Safely secure loose or light material.
- Pay special attention to scattered tools, hoses, extension cords, materials, or debris to avoid tripping or other hazards.
- Tools, materials, and equipment should be secured safely to avoid displacement which may cause accidents.

Fig 3.5.7: Housekeeping at site

- Provide access ways inside and outside building, storage yards and other places. Always clear the debris and scrap.
- Detach or hammer in or curve over any protruding nails on floorboards, scrap boards, planks and timbers.

3.5.5 Safe Disposal of Waste

Construction waste includes building materials such as nails, bricks, mortar, cables wires, insulation, wood and concrete. It also includes materials like debris, tree stumps, and rubble.

Construction waste may contain materials that are hazardous or harmful to environment, health and safety of the workers such as lead, asbestos etc. For example, when wires are burned in open it releases fumes that are toxic in nature. A toxic substance means any chemical or mixture that may be harmful to human health if inhaled, swallowed, or absorbed by skin.

Fig 3.5.B: Construction waste

In order to avoid damage to health, safety and environment, construction waste material should be reduced, reused and recycled. Materials that cannot be used should be disposed and managed in a right manner.

Mason tiling should inform the supervisor about the waste accumulated at the site to seek guidance for appropriate ways of reuse, recycle and disposal.

For example,

1. Debris, rubble, concrete can be recycled or used for landfills.

2. Concrete, mortar, bricks can be recycled for construction work.

Fig 3.5.9: Segregation of construction waste

3.5.4 Housekeeping at site

1. Packaging waste, wood can be reused or recycled.

Construction waste can be classified into the following types:

1. Wood: Plywood or sawdust
2. Masonry: brick, concrete, mortar
3. Plastic: plumbing pipes, PVC, plastic sheets
4. Cardboard: Cardboard packaging material
5. Electrical: wires, cables and other material
6. Other such as Paper, fibreglass etc.

This waste needs to be disposed of in a suitable environmental friendly way.

Fig 3.5.10: *Disposal of construction waste waste*

Exercise

1. Tripping over objects can be reduced by ....

2. Which is not the element of effective housekeeping

    (a) Waste disposal

    (b) Cleaning

    (c) Machining

    (d) Spill control

3. Spilled oil can be the cause of an accident. True or False

4. Which is not a benefit of housekeeping?

    (a) Reduce the waste of searching

    (b) Reduced set-up times

    (c) Increased productivity

    (d) Improved machine dependability

5. The most serious environmental effect posed by hazardous wastes is

    (a) air pollution.

    (b) contamination of groundwater.

    (c) increased use of land for landfills.

    (d) destruction of habitat.

6. In a health and safety context, a hazard is:

    (a) Anything that could result in a psychological injury.

    (b) Anything with the potential to result in an injury or illness.

    (c) The likelihood of someone being injured in the workplace.

    (d) Anything that could result in a physical injury .

4. Tools, materials and consumables required for mason tiling

Unit 4.1- Tools for mason tiling

Unit 4.2 - Material and consumables required

Key Learning Outcomes 🔆

At the end of this module, you will be able to:

1.   Understand various types of tiling tools;

2.   Know about use of tiling tools;

3.   Know about tiles;

4.   Know about different types of tiles;

5.   Know about consumables required; and

6.   Know about storing and stacking of materials and consumables
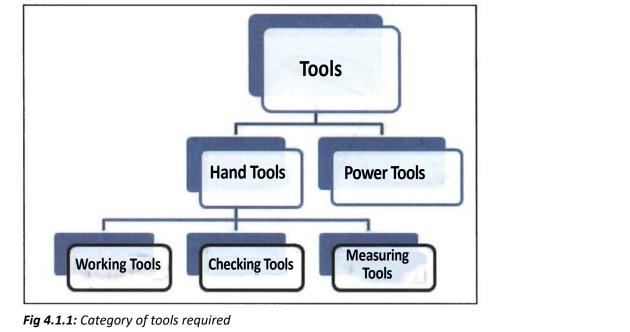
UNIT 4.1: Tools for mason tiling

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Understand various types of tiling tools; and

2. Know about use of tiling tools.

4.1.1 Tools required

Fig 4.1.1: *Category of tools required*

4.1.1 Tools used by Mason tiling

Commonly used tools for mason tiling are given below:-

Tool	Image	Use of tool
Tile Scribe		A tile scribe is a tool used to put marking (scribe) on the tile surface so that tile can be broken along the scribe line.

Tile Cutter		Tile cutter helps in cutting large number of tiles along straight lines.
Tile Nippers		Tile nipper is a hand held tool which is used to cut/nip small piece of tile of irregular shape.
Tile Hand Saw		A tile saw is used to cut the tiles in various shapes (specifically along straight lines).
Tile Drill		These are special Carbide-tipped bits used for drilling on tile, mirror & glass.
Tile File		Tile file is used to smoothen rough edges of the tiles and to shape tiles.
Profile Gauge		A profile gauge is used to transfer irregular/curved shapes on the tiles.

Notched spreader		Notched spreader is used to spread the adhesive over the wall or floor before placing the tile. Notched spreader is mainly used for small scale work.
Tile Trowel		Tile trowel is used to spread adhesive over the wall or floor before placing the tiles. Tile trowel is mainly used for large scale tiling work.
Grouting Spreader		Grout spreader is used to spread grout in the gaps/ space between the tiles.
Grout scraper		Grout scraper is used to remove old/ unwanted grout from the tile joint.
Grout Float		A grout float looks like as trowel but features a rubber base rather than a metal one. By using this tool, you can quickly and easily pick up grout and apply it to a tiled surface.
Pointing Trowel		Pointing trowel is used to fill grout between joints of bricks, stones etc.
Tile Removing Chisel		Tile removing chisel is used to remove tile from the walls or floors in a quick & easy manner with minimum damage.

Spirit level		It is used to check the level of tiled floor and wall surface.
Plumb bob		Plumb bob is used to check the verticality of the wall.
Steel rule		• It is used to draw /scribe a straight line • Also used to check accuracy of a flat surfaces • Scale for setting dividers and other marking tools .
Tape rule		For the measurement and marking of tiles tape rule is used.
Engineers square		• When marking out lines at right-angles to the edge of work • It helps to setting up or testing work for square.

4.1.2.1 Selection procedure of hand tools

- Check and ensure that scribe mark of the tile scribe is straight by using it against a straight edge.
- When buying a Tile Cutter, size of the tile to be cut should be taken into account so that bigger size tiles can be accommodated in the tile cutter.
- There are various designs of tile cutters available in the market but the type most commonly used is 'scribe wheel'. In this cutter tile is placed along the scribe line and scribe wheel is pulled along this tile. The breaking arm is pushed down along the mark to cut the tile along the scribe line.

Fig 4.1.2: Tile scribe

Fig 4.1.3: Tile cutter

- Tile handsaw consists of a frame which holds a special tile cutting blade at its end. The distance between blade & the frame should be large enough to adjust a tile being cut. The special tile cutting blade is normally round in section with cutting edges on all sides.

Fig 4.1.4: Handsaw

- A drill bit should be selected as per the size of hole.
- Select the measuring instruments based on the requirements
    o Tape rule is used for the measurement of large area.
    o Steel rule is used for measurement of small distance.
    o Spirit level is used for checking the levelling of floor tiles.
    o Plumb bob is used for checking the verticality of wall tiles.

Fig 4.1.5: Drill bit

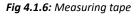*Fig 4.1.6: Measuring tape*   *Fig 4.1.7: Steel rule Fig*   *4.1.8: Spirit level*

- Trowel is used based on the application of mortar and grout on the floor.

Fig 4.1.9: Trowel

4.1.2.2 Maintenance of tools

Inspect the cleanliness

- Before returning tools to store you should clean them.
- Before putting tools into their proper places you should wipe them down with a rag or old towel so that they are free of dust, grease and debris. This helps to look after any damage or defects. pulled along this tile. The breaking arm is pushed down along the mark to cut the tile along the scribe line.
- Tools handles should be free from splinters, breaks and cracks.

Fig 4.1.10: Tools maintenance

- Metal parts on tools shouldn't show any signs of corrosion or rust. If a tool shows any signs of damage, it should be repaired or replaced.
- Cold chisels, log-splitting wedges and other striking tools should be inspected and maintained regularly otherwise they can be very dangerous. As these types of tools are used for repeated striking, the surface of the metal head eventually mushrooms out and spreads to form a lip or ridge around the edge.
- After cleaning, use all-purpose oil to lubricate tools with adjustable parts.
- Ensures handles are comfortable enough to slide your hand along. In case the wood is rough, sand across the grain in a shoe-shine fashion. Finish by sanding along the grain. Apply a coat of oil on the handle so that wood is protected.

Sharpen important components

- Maintain the sharpness of the tool components designed for sharpening, cutting, slicing or chopping.
- Perform routine maintenance on specific parts that need to sustain a particular sharpness so that production quality is not hampered.

Fig 4.1.11: Tool tip maintenance

Storing and take good care of accessories and parts properly

Routine maintenance is a key to good health of tools. The following are some helpful tips on how to clean and properly store your tools.

- Protect tools from dust, moisture and other situations by storing them properly after use.
- If possible keep tools in their original cases, or place them away in storage drawers or tool chests, preferably in a garage or basement with a moderately controlled climate.
- Organize tools properly to help in easily finding the required tool.
- Ensure regular check-up of tools to avoid any signs of wear or damage.

Fig 4.1.12: Storing of tool

- Moving parts of tools should be kept lubricated for premium output. It keeps the mechanics of a tool running smoothly and decreases the chance of rust development.
- It keeps the mechanics of a tool running smoothly, it also decreases the chance of rust developing.

4.1.3 Power tools

Tile Power Saw

Tile power saw is a power tool used to cut the tile in a straight line. It is most useful when large number of tiles is being cut. This power tool contains an inbuilt water tank which sprays water on the cutting area:

Fig 4.1.13: The Power Saw

While selecting a Tile Power Saw:

• Check:

    o   Motor should be of high wattage and should have a powerful handle

    o   Size of table should be large enough to support the cutting edge of the full tile.

• Tile power saw should be able to operate at different voltages.

• It should have:

    o   An adjustable guide fence.

    o   A Blade Guard

    o   A Waterproof Switch

    o   Overload Protection

    o   A water tank for cooling while blades while cutting tiles.

    o   A Diamond Blade

Fig 4.1.14: The Power Saw

A tile cutting power saw blade should be used to cut specified types of tiles only. If you are using blade for all purpose, then it may damage the blade.

Maintenance tips for power saw

Ensure machine's specific checkpoints are clear to perform good and effective preventive maintenance. Always refer to the power saw's manual to ensure any area requiring regular maintenance hasn't been overlooked. Carry out regular and periodic maintenance to keep the tools durable and operable. Some regular & periodic maintenance check points are:

Fig 4.1.15: Tile power saw maintenance

Daily

• Clean chips from blade guides and wipers, band wheels, chip brush and pans, vise jaws, and machine surfaces.

• Inspect regularly the blade guides, blade wipers, blade and chip brush for wear and tear.

• Replace defective parts.

• Check fluid and lubricant being used.

Every Three Months

• Regularly clean sawing fluid/lubricant reservoir and screen.

Fig 4.1.16: *Power saw lubrication*

Every Six Months

• Replace filters of hydraulic fluid.
• Clean magnetic plug of hydraulic fluid reservoir.
• Lubricate saw column pivot point.
• Blade guides should be inspected and adjusted.

4.1.4 Materials and Accessories

Name	Image	Use
Sponge		Use a grout sponge to wipe away any excess grout, and clean the surface of the tiles.
Spacers		Tile spacers are small pieces of plastic or rubber that allows you to achieve consistent spacing between tiles when installing on floor or wall
Tile edge trims		Tile trims are used at the corners of the exposed edges of the tiles to protect the edges and give good finish

Table 4.1.2: *Accessories required for mason tiling work*

4.1.4.1 Selection procedure of spacers and tile edge trims

Selection of tile edge trims

There are various types of edge trims but the most commonly used are aluminum edge trims because they are light in weight, durable & easy to install.
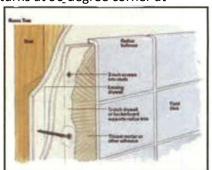
Types of tile trims

1.   Trim tiles: They are available in variety of configurations to satisfy the design requirements of any installation. Edge trims with 1 or 2 rounded edges can be used along the perimeters of walls and countertops. Trim tiles can also be used on base tile of a floor.
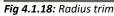

Fig 4.1.17: *Trim tiles*

1. **Radius Trim:** Radius trim consists of rounded lips which can turns at 90 degree corner at the edge of the tile. The turned edge covers the thickness of the setting bed when the setting bed is raised over the existing wall surface.

Fig 4.1.18: Radius trim

2. **V-cap edging:** V-cap edging provides professional-looking results in any tile installation. The lower leg of the cap takes the place of a separate cut. Both legs of the cap require back-buttering with adhesive.

Fig 4.1.19: V-cap edging

3. **Base tiles:** To finish a floor installation base tiles are used. Base tiles which specially cater to this purpose have a coved foot at the base. Bullnose floor tiles are also available. In case of absence of a base tile, field tiles can be cut to be used as trims.

Fig 4.1.20: Bose tiles

4. **Borders and accent tiles:** Borders and accent tiles enhance visual appeal of an installation. Border tile is a narrow length tile used for finishing an edge. Accent tiles come in contrasting shape, texture, size and color. They are made of glass

Selection of spacers

To look your finished product incredibly professional then spacer is tiles used. Spacers have variety of different shapes and sizes.

Fig 4.1.21: Borders and accent tiles

Some of the main types of tile spacers are:

- 'T' shaped, cross shaped, and horseshoe shaped are few examples and each has its own function.
- For cross shaped flooring spacers 'Checkerboard' like patterns are used and for more irregular, offset patterns 'T' shaped spacers are used.
- For wall installations, horseshoe spacers are perfect because they hold their shape and don't cause grout bulging.
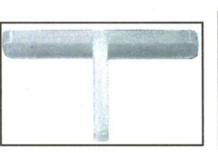

Fig 4.1.22: Different shapes of spacers

When it comes to grout lines, everyone likes a different width. For less cleaning and maintenance narrow grout lines are becoming popular. If possible you should consider a narrow tile spacer.

The size of spacer is decided on a personal preference. Usually for walls, size of spacer is 2 mm & for floors size of spacers is 3 mm.

1mm   1.5mm   2mm   2mm L   3mm   3mm L   4mm   5mm

Fig 4.1.22: Different shapes of spacers

Exercise

1. A tool which is used to score the shiny surface of tiles. True or False
2. A tool used to cut away small, often irregular, areas of tile in a controlled manner is:
   a. Tile Cutter

       b.   Tile Drill

       c.   Tile Nippers

       d.   Tile File

3.   Plumb bob is used for checking the levelling of floor tiles. True or False

4.   Important Inspect the cleanliness are:

       a.   Before returning tools to storage you should clean them.

       b.   Tools handles should free form splinters, breaks and cracks.

       c.   To look after any damage or defects.

       d.   All of the above

5.   Tile Power Saw should be available for different voltages, normally 90 or 180v AC. True or False

6.   How many types of tiling trims?

       a.   5

       b.   8

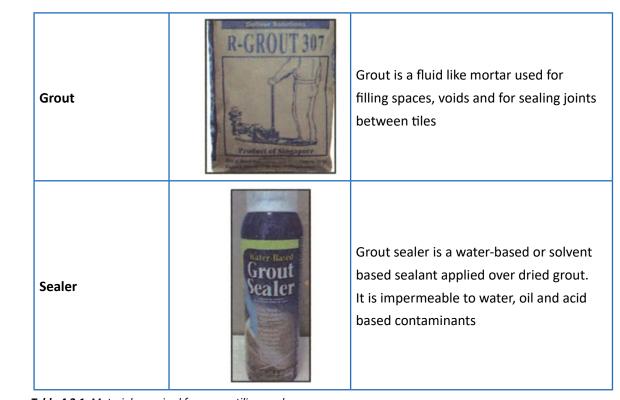   c.   4

       d.   2

Notes

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UNIT 4.2: Materials and consumables required

Unit Objectives ◎

At the end of this unit, you will be able to:

1.   Know about tiles;

2.   Know about different types of tiles;

3.   Know about consumables required; and

4.   Know about storing and stacking of materials and consumables.

4.2.1 Material required

Materials required for tiling work are:

Material	Image	Use
Tile		Tile is a hard wearing material made up of ceramic, porcelain, PVC, metal, glass etc. Tiles are generally used to cover floors, roofs & walls.
Adhesive or cement		Tile adhesive is premix self-curing solution used for fixing the tiles, marbles etc.
Sand		Sand is a naturally occurring granular material composed of finely divided rock and mineral particles/river sand.

Grout		Grout is a fluid like mortar used for filling spaces, voids and for sealing joints between tiles
Sealer		Grout sealer is a water-based or solvent based sealant applied over dried grout. It is impermeable to water, oil and acid based contaminants

Table 4.2.1: Materials required for mason tiling work

4.2.2 Selection and specification of materials

4.2.2.1 Tiles

Tiles are selected and specified based on shape, color and material type.

The main purpose of tiles is to provide covering to walls & floors in the form of simple and complex pattern.

Types of tiles

For residential and commercial applications there are many types of tiles being used. Tiles help in choosing cost-effective and environment friendly flooring choices. Tiles are created from natural clay and often from other (recycled) materials.

Fig 4.2.1: Ceramic tile

1. **Ceramic Tile:** This tile is commonly used in the offices, stores and homes. There are two types of ceramic tile:

   • Unglazed tiles, are made from clay and then heated.

• Glazed Ceramic tiles: These have a protective coating on them and are available in varied colors which are created through the glazing process.

1. **Quarry (Unglazed) Tile:** Quarry tile is unglazed ceramic tile.

   • This type of tile is low cost & it is the generally used for industrial, residential and commercial tiling applications.

   • This type of tile is durable and less prone to scratches and chipping.

   • For colder region, freeze-resistant grades of quarry tiles are used

   • These tiles are mainly used in kitchens and pathways.

Fig 4.2.2: Quarry tile

2. **Porcelain Tile:** It is a type of ceramic tile manufactured by heating clay at a much higher temperature.

   • These tiles are relatively thicker and damp proof.

   • These tiles are stain-resistant as these are less permeable to liquid or air.

   • The cost of porcelain tile is high.

   • These tiles have longer durability due to its high density & hardness.

   • These tiles can be used for all types of tile finishes.

Fig 4.2.3: Porcelain tile

3. **Mosaic Tile:** These can be made of ceramic, glass, natural stones etc.

   These are used to create a variety of designs.

   • Mosaics tile are smaller in size and used to create variety of patterns.

   • These can be used to create unique shapes including regular polygon.

   • For quick installation and even spacing, these are also available as paper mounted or mesh mounted.

Fig 4.2.4: Mosaic tile

4. **Marble Tile:** Marble tile is made from natural stone.

   • These are used to create a luxurious and unique look.

   • These tiles have a lot of color variation and they are made from natural stone.
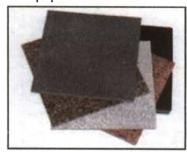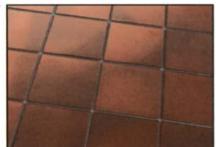

Fig 4.2.4: Marble tile

- These tiles are porous and need to be sealed.

5. **Vitrified Tiles:** These are manufactured using white clay that is heated over high temperatures. These tiles are solid and non-permeable.

  - These types of tiles are used in floors of homes & offices due to their mirror finish look.

  - Vitrified tiles offer much better scratch resistance, resistance to acids, better mechanical strength (MOR), resistance to staining, alkalies and chemicals compared to marble or natural granite.

Fig 4.2.6: Vitrified tile

6. **Terracotta Tiles:** These tiles are made up of fired clay and used for indoors or outdoors.

  - In comparison to other tiles, these are soft and porous and need to be sealed when being used indoors.

  - Since these tiles retain moisture in the open air, these are ideally left uncoated. If these tile are coated, white salts is collected under the sealer.
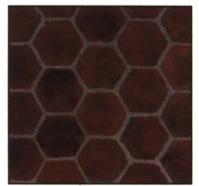
Fig 4.2.7: Terracotta tile

While selecting tiles consider following technical features:

- **Water absorption:** Water absorption plays an important role. For example, if the tiles absorbs higher amount of water then it effects the sustainability of tile for outdoor use.
- **Mechanical features:** The mechanical features can be calculated on the basis of the bending strength and the breaking stress.
- **Surface mechanical features:** These are calculated on the running surface of the tile and are related with the wear and deterioration, resistance to scratches due to the handling /moving of hard bodies on its surface and in contact with it.
- **Thermo-hygrometric features:** The resistance to dampness ("hygrometric") and specific temperatures ("thermo") is described by thermal shock, frost resistance and crazing resistance.
- **Chemical features:** Theses includes resistance to stain, resistance to house hold items, resistance to acids and bases etc. Chemical Stain Resistance involves withstanding compunds such as red aerosol paint, 10% hydrochloric acid, 10% ammonium hydroxide, urine, saturated calcium chloride, 1% soap solution, black stamp pad ink, chewing gum, turpentine, Urea 5%, diesel fuel and motor oil etc., without staining or recoloring.

4.2.2.2 Tile Adhesive

Tile adhesive has additives which make it stickier and allows more movement. Tiles tend to expand or contract with heat and cold .If we use mortar for fixing tiles, they are likely to pop loose after a while

1. **Cement**- based adhesives: The traditional sand/cement mortar and semi-dry bed methods are alternative methods of tile fixing but these require an experienced fixer's supervision for installation..

   Rapid-set adhesives: These are standard adhesives having reduced operation time.

2. **Flexible adhesives:** These are used to counter the effects of minor movements and deflections. These are used in more demanding applications which require improved adhesion, waterproofing and/or elasticity. They are mixed with water prior to use and have built in admix.

3. **Pourable adhesives:** These are pourable in consistency and are used to butter tiles to get solid bed prior to placing onto the ribbed bed. This ensures no empty spaces are left beneath tiles ..

4. **Epoxy adhesives:** These are used for full chemical resistant bedding and for fixing of metal surfaces. This consists of two section resin/hardener system.

Fig 4.2.8: Tile adhesive

4.2.2.3 Grout

It is essential to choose correct grout to cut down on maintenance and to complete the tiling work properly. Proper installation and sealing of grout enhances life of tiled surface.
There are various types of grout:

Non sanded (un-sanded) grout: This grout is commonly known as "wall grout". It is essentially a grout without the sand.

Fig 4.2.9: Non-sanded and sanded grout

• Non-Sanded grout is used on polished marble and ceramic tile with grout joints smaller than 1/8 inch.

• Non-Sanded grout should be sealed to reduced absorption after installation and to reduce cleaning problems associated with sanded grout.

Sanded grout: Sanded grout is most commonly used for ceramic tile, stone or any other tile having

a larger grout joint.

• Fine sand is added to sanded grout to prevent too much thinning of joints on curing.

• Because of this property sanded grout is used for larger grout lines and in majority of tile installations.

Please remember: Never use sanded grout on polished marble. It is essential to install polished marble with a grout width smaller than 1/8 inch.

Epoxy grout: It is made up of a resin and a hardener.

• It is most trusted resistant to chemicals and stains. The new versions of epoxy grout have detergents added to them and are easier to work with them and clean up after wards. The older epoxy grouts were not easy to apply.

• Epoxy grout is more expensive and water resistant.

• Epoxy grout has a very long shelf life unlike cement

Fig 4.2.10: Epoxy grout

grouts which can survive for a year in the sealed containers. If it is maintained above freezing temperatures can survive for many years.

• This type of grout is used for more water and stain resistant tiles.

Key part of a proper tile installation is to picking the correct grout and if you choose incorrectly you could face multitude of problems and headaches. Selection and installation of grout is an important part for good completion of tiling works.

4.2.2.4 Grout sealer

There are two main types of grout sealer, for membrane forming and penetrating:

• For an unglazed tile, membrane forming sealer is best to use. This sealer don't create bond withthe glaze. To deal with floor tiles this type of sealant is required. Sealant forms a nonporous membrane which does notthat allow moisture to seep into the grout, though this makes it difficult to dry.

• Penetrating sealer is most commonly used and it does not have problem like in membrane forming sealer. To fills up the pores of the grout and to reduces absorption of moisture and stains, silicone or latex composition are appled ..

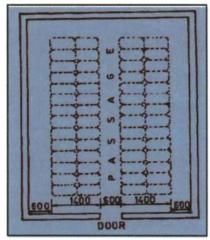*Fig 4.2.11: Grout sealer*

4.2.3 Storing and stacking of materials

Storing and stacking of cement at site

- Building used for storage of cement should be, leak proof and moisture proof.
- There should be less number of windows in the storage building.
- Place the cement bags above the floor (about 150 mm to 200 mm above) on long flat thin piece of wood.

Fig 4.2.12: Stacking of cement bags

- The floor may comprise of lean cement concrete or two layers of dry bricks laid on well consolidated earth.
- The minimum space between the exterior walls and the stacks should be of 600 mm all-round.
- To reduce circulation of air, stack the cement bags close to each other.
- To avoid the lumping of cement due to pressure more than 10 bags should not be stored one over another.
- The width of the cement bag should not be more than four bags length or 3 meters.
- If the stacking of cement bags is more than 8 bags in height, the stacking should be done alternately in length wise or cross section wise to avoid the risk of falling.
- Placement of stack of the cement bags shall be in such a way so that it is easy to remove them as per the sequence of receiving them.

Fig 4.2.13: Storing and stacking patterns of cement bags

- Marking of date should be there on each stack of cement bags to show date of receipt of cement and to know the age of cement.
- Water proofing sheets such as polyethylene can be used when it is required to store cement for a long period of time or during the monsoons.
- Cement of different types must be stacked and stored separately.

Storing and stacking of grout bags at site

For storing and stacking of grout bags follow the same procedure as discussed above.

Storing and stacking of tiles at site

How to stack tiles is the most important part. If the number of boxes of tiles are less then they can be stored one over another, but if the number of boxes are more, then the boxes should be stored either in their factory position.

If open tile are stored they should be stored vertically or little tilted, but should not be placed flat.

- There is chance of chances of crushing and breaking of tiles under load if they are stacked horizontally. When placed vertically, this pressure is absorbed.
- To decrease the cost of construction the tiles should be stacked near the site.
- The construction work shouldn't be obstructed by stacked tiles. Stacking of tiles should be systematic to facilitate numbering.
- The tiles procured first should be used first.
- 1m is the maximum height of the tile stacks.

Fig 4.2.14: Storing and stacking a/tiles

Notes

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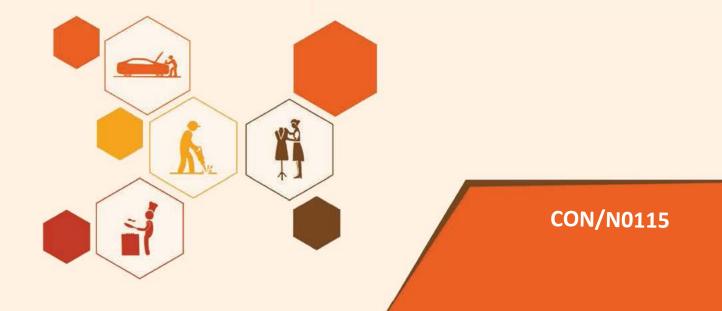
5. Laying and fixing of tiles

Unit 5.1- Sketches/layouts in tiling

Unit 5.2 - Cutting of tiles

Unit 5.3 - Horizontal laying and fixing of tiles

Unit 5.4 - Vertical laying and fixing of tiles

CON/N0115

Key Learning Outcomes 💡

At the end of this module, you will be able to:

1.   Read the layout and sketches;

2.   Understand informatory signs on the sketches;

3.   Know about how to identify batch no. and arrow mark on tile;

4.   Know about tools required for cutting tiles;

5.   Perform tile cutting;

6.   Discuss about surface preparation methods;

7.   Perform preparation of cement mortar;

8.   Perform laying and fixing of tiles horizontally; and

9.   Perform laying and fixing of tiles vertically.

UNIT 5.1: Sketches/layouts in tiling

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Read the layout and sketches; and

2. Understand informatory signs on the sketches.

5.1.1 Layout and Sketches for Tiling Work

The layout/ drawing of the area to be tiled puts all details on paper, making tiling work easier. It reflects the framework of tiled surfaces and the layout of the tile.

Reading and interpreting tile layouts

Types of marking present in sheet:-

LEGEND			
	SS CORNER GUARD		LAMINATE
	BLOCK WAIL		TILE - 3 DADOING
	RC,COLUMN		SKIRTING TILE/GRANITE SEEN IN ELEVATION

Fig 5.1.1: Types of marking on tiling work layouts

ABBREVATION			
FFL	-FINISHED FLOOR LEVEL	PRH	-PAPER ROLL HOLDER
EWC	- EUROPEAN WATER CLOSET	LSD	- LIQUID SOAP DISPENSER
BT	-BIB TAP	JC	-JANITOR CLOSET
PC	-Pill.AR COCK	MI	-MIRROR
CSWB	- COUNTER SUNK WASH BASIN		-LVLDROP
UR	-URINAL	G.	-CENTER LINE
BTP	-BOTTLE TRAP	SB	- SWflCH BOARD
DY	-HAND DRYER	R	- REMAINING TILE
HF	-HEAllli FAUCET	PR	- PAPER ROLL DISPENSER

Fig 5.1.2: Abbreviations used on tiling work layouts

Dimension & symbol description:-

▨	RECESSED FLOOR MAT	▨	1900MM HIGH BLOCK WALL
▨	BlOCK WALL	▨	TILE-4
▨	R.O. COLUMN		
➤	ELEVATION MARKING		
⟶◇	SECTION MARKING		

TILE	TILE-1 6OOX600MM	TILE-2 3OOX300MM	TILE-3 3OOX3OOMM	TILE-4
GENTS	SK BLUE GRANITE	BIANCO WHITE	OSCAR BLUE	20MM THK. JET BLACK GRANITE

Fig 5.1.3: Symbols used on tiling work layouts

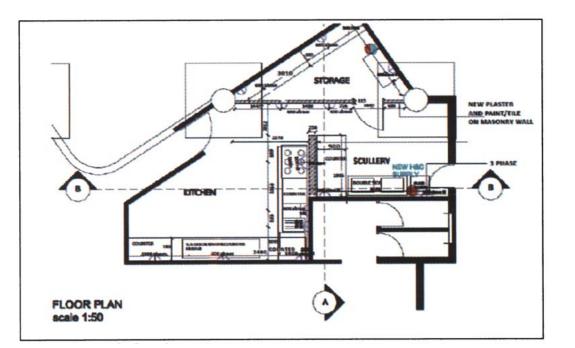## 5.1.2 Understanding tile and sketches

Fig 5.1.4: Drawing for floor plan area

Layout and section details, a model in sketch up and two renderings of the space

Tke two sectinal drawings of the tiling area to get a proper understanding of the layout of tiles, tiling details with required finish and materails used in tiling works.
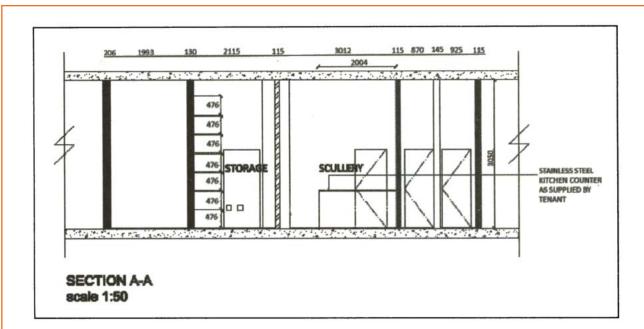
Fig 5.1.5: Sample model plan of storage
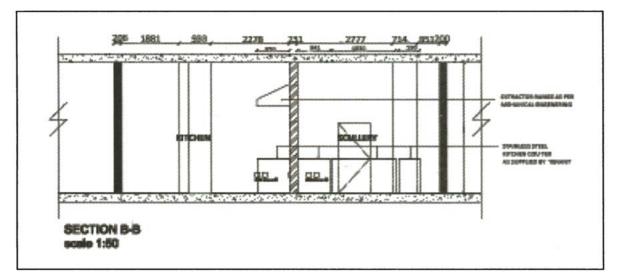
Fig 5.1.6: Sample model plan of kitchen

In order to estimate the quantity of material required and cost of tiling works, area calculation are carried out using tile layout plan. A tile layout plan indicates the quantity of tiles required, starting point of tiling works and location of soft jonts so that tile popping is prevented. It is advisable to use two sectinal drwaing with the tile layout plan to understand clearly the laying patttern and position of tiles for tiling works.
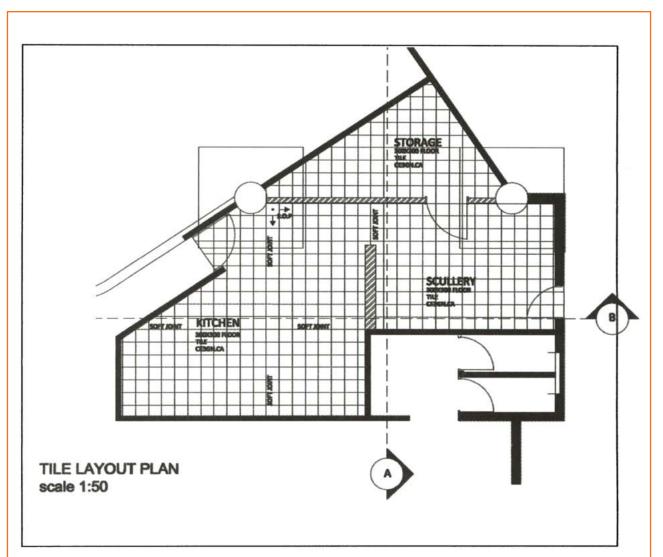
Fig 5.1.7: *Sample tile layout plan of building*
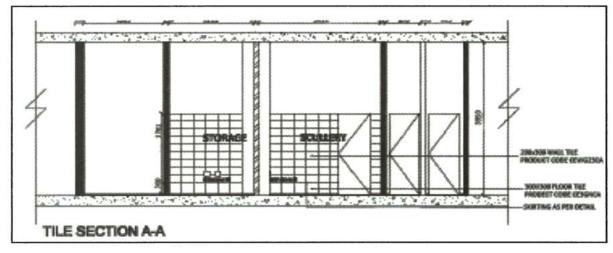
Fig S.I.B: *Sample tile section of building*
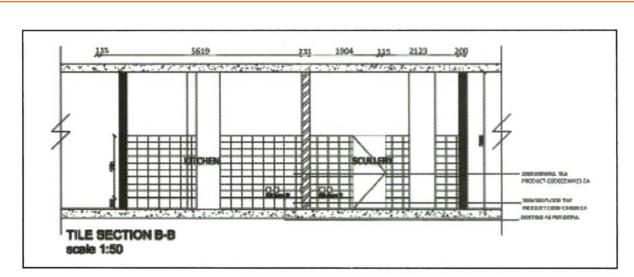
Fig 5.1.9: *Sample tile section view of building*
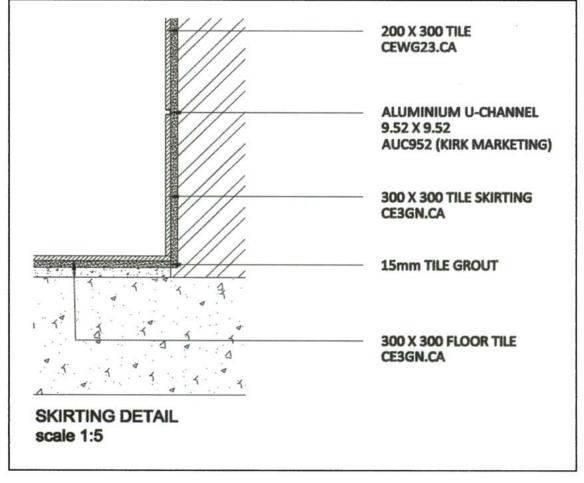
Fig 5.1.10: *Sample skirting detail of building*

UNIT 5.2: Cutting of tiles

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Know about how to identify batch no. and arrow mark on tile;

2. Know about tools required for cutting tiles; and

3. Perform tile cutting.

5.2.1 Identifying batch no. and arrow mark on tile

1. **Identifying the batch no. on tile box:** Batch number which indicates the products specific production run details. From batch to batch, tiles may vary in shade, color, size and appearance. Many variables occur as a result of variations in ingredients, dyes, temperatures both within the kiln and outside air temperatures etc.
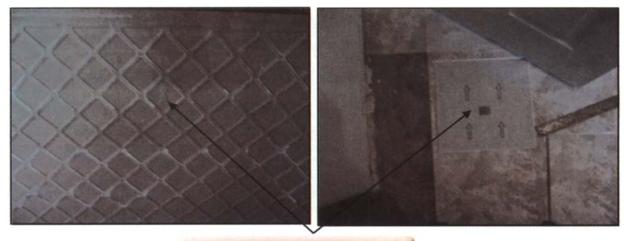
Fig 5.1.1: Types of marking on tiling work layouts

2. **Identify the arrow mark on the back side of the tile.**

Arrows on the back of the tile indicate directionality. The arrows are there to ensure that all of the tiles are laid out facing the same direction. This ensures uniform pattern of laying of tiles.

Arrow marks on the back side of the tile

Fig 5.2.2: Arrow mark on back side of tile

5.2.2 Cutting of tile

Manual cutter or electrical wet saw cutter is used for cutting of tiles.

Using manual cutter for cutting tiles

It is not always easy to cut tiles using tile scribe. Therefore it is recommended that it can be used in combination with a tile snapper. This ensures that tiles are cut with application of little pressure only. Tile snapper cuts tiles using following steps:

Step 1

First, mark the tile you want to cut in the normal way. Then, using a steel rule, run the cutting wheel of the tool along the line, pressing down firmly and to score the glaze.

Fig 5.2.3: Marking on tile by steel rule

Step 2

Place the tile between the jaws of the tool and align the scribe line with the centre mark. The tile will break into two parts along the scribe line, when the ends of the tiles are pressed firmly.
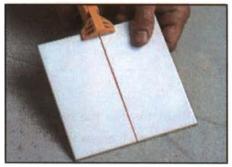
Fig 5.2.4: Marking centre line on tile

How to make curved cuts in wall tiles

The simplest ways to make curved cuts in wall tiles is by using tile saw. The tile saw consists of around blade which helps to change direction easily.

Step 1

Take a piece of paper or card as per the tile size and cut it to the shape required. Then lay it over the tile and mark the shape on the face of the tile.

Step 2

Clamp your tile securely and cut along the line with a tile saw. Check the cut profile of the tile and make any adjustments with a tile file.
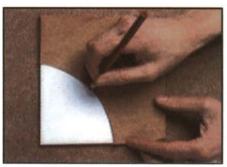
Fig 5.2.5: Marking curves on tile

Fig 5.2.6: Cutting curves on tile

How to use a tile-cutting machine

Tile cutting machine is a hard-wearing lever-action tool having a snapper, and a strong bed which supports the tile. Some machines also have a removable gauge for measuring the tiles, and even make an allowance for a grout gap and tapered cut. Tile-cutting machines are simple to use and cost effective too.

Step 1

Firstly, select the tile you want to cut and carry out marking of the tile. Then put it into the machine, lining up the mark with the tool's guide. In order to bring the scorer into contact with the tile lower the handle, then press down and push the handle forward.

Fig 5.2.7: Inserting tile in the machine

Step 2

Fit the tile into the slide of the handle, carefully aligning the scored mark with the guide. Then lower the handle until the snapper touch the underneath of the tile.

Fig 5.2.8: Fitting tile in the machine

Step 3

To break the tile along the cutting line, press down firmly on the handle.

Cutting tiles by using wet saw

Fig 5.2.9: Cutting tile by the machine

To reduce the risk of breaking of tiles when they are being cut, it is advisable to saw 3/4th of the length of the tile on one side and then rotating the tile around and cutting the remaining length.

Step 1: Aligning tile on the table

- Tile should be placed in such a way that when the layout line is at the blade, the widest part of the tile should be between the blade and the fence. Hands should be kept away from the blade during the cutting.

Fig 5.2.10: Positioning tile on the wet saw

- Always wear a pair of safety glasses and back the tile away from the blade prior to turning on the saw.
- To check how to position the tile, try setting it up in different positions and use the one that supports the largest section of tile on the table during the cut.

Step 2: Cutting tile

- Use both hands for holding the tile, and then feed it along the fence and into the blade.
- Always put hands away from the blade.
- Push the tile piece between the blade and fence till the time tile completely clears the blade.

Tips

Fig 5.2.12: Cutting Tile by wet saw
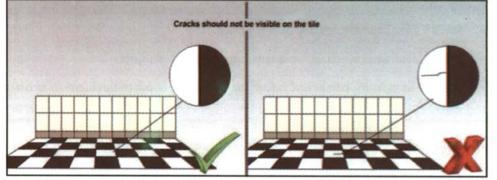
Fig 5.2.13: Tips during cutting tile
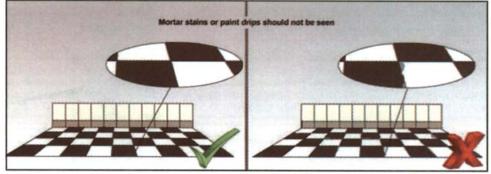
Fig 5.2.14: Tips for housekeeping

- For marble tiles usually 0.16 to 0.32 cm spacers are recommended.
- To ensure proper leveling of floor, use the longest level.
- If the floor slope is more than 1/16 of an inch (0.16 cm) for every 3 feet (0.9 m), then a sub.
- floor needs to be laid.
- Marble can crack or chip easily so it is advisable to lay it flat.

Warnings

• Test for Asbestos should be carried out before removing vinyl tiles, because asbestos releases fibers which are very dangerous for respiratory system. If it is found positive, take professional help for removing vinyl tiles.

• Since the blade of wet saw is very sharp and can be dangerous so be careful while using the wet saw.

5.2.3 Purpose of workplace housekeeping

Poor housekeeping can be a cause of accidents, such as:

• Injury by falling objects.
• Being tripped over by loose objects, debris etc. on stairs, floor or walkways.
• Slip on wet, slippery, greasy or dirty floor.
• Hitting against projecting, unsafelyjpoorly stacked objects
• Cutting or tearing of skin of hands or other body parts because of protruding nails and wires

5.2.3.1 Benefits of good housekeeping practices

Effective housekeeping results in:

• Easy flow of materials;

• fewer tripping and slipping accidents in clutterfree and spill-free work areas;

• reduction in the number of fire hazards;

• lowers workman's exposures to hazardous substances (e.g. dusts, vapors);

Fig 5.2.15: Housekeeping during laying tile

• Better control of tools & tackles, materials, including inventory and supplies;

• Efficient equipment cleanup and maintenance;

• Better hygiene conditions leading to improved health;

• Effective use of space;

• Reduction in property damage;

• Improves productivity (tools and materials will be easy to find).

Fig 5.2.16: Housekeeping on site

5.2.3.2 Housekeeping practices during tile cutting

Cutting Waste

- To avoid escape of dust and sediment into the storm drain system, do not carry out cutting or fabrication activities in open/outside.

- Take special care for the built-up of dust and sediment in the indoors so as to avoid contamination of outdoor areas.

- Never hose down or wash any sediment or dust off the paved areas.

Fig 5.2.17: Housekeeping during cutting

- In order to minimize storm water contamination, sediment, dust and other pollutants, outdoor areas should be swept or vacuumed up.

Wastewater Management

- Tile waste water should not be disposed into storm drains or ground.

- It is advisable to sweep or direct wastewater to a recycling system and avoid disposing tile cutting waste water into storm drains.

Exercise

1. You should Identifying the batch no. on tile box.

   True or False

2. For cutting of tiles it is recommended to use manual cutter or electrical wet saw cutter.

   True or False

3. Poor housekeeping can be a cause:

   a. Tripping over loose objects on floors, stairs and platforms.

   b. slipping on greasy, wet or dirty surfaces

   c. striking against projecting, poorly stacked items or misplaced material

   d. All of the above

4. For surface preparation following process are used:

   a. Broom Cleaning

   b. Acid Etching

   c. Sandblasting

   d. All of the above

5. For the Preparation of cement mortar, what are the Ingrdients required?

   a. Cement

   b. Sand

   c. Water

   d. All of the above

6. Mixture of cement and sand with water of certain proportion is called Mortar.

   True or False

Practical Exercise

1. Use tile cutter and cut a tile of 600 mm x 600 mm in semi - circle shape having radius of 200 mm.

2. Use tile power saw and cut the 300 x 300 (mm) ceramic tiles from all the corners at an angle of 900º.

3. Use tile cutter and cut a 100 x 200 (mm) ceramic tiles in step shape from one corner to another corner diagonally.

UNIT 5.3: Horizontal laying and fixing of tiles

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Discuss about surface preparation methods;

2. Perform preparation of cement mortar; and

3. Perform laying and fixing of tiles horizontally

5.3.1 Surface preparation

Surface preparation is carried out prior to fixing of the tiles. For this the base concrete should be spotless, dry and free of dirt, oil, dust, mortar spatter and development of form release.

Methods of surface preparation

1. **Broom Cleaning -** Brooming, air blast or vacuum cleaning is used to remove all surface dirt and other contaminants.

2. **High Pressure Water Blasting -** To remove mortar, dirt, eroded and weak concrete, loose concrete and chemical contamination a water blasting at 3500-4500 psi can be used. Water blasting will not remove oil, laitance, grease or sound old coatings. Although water blasting is dust free, it requires good drainage for disposal of large volume of water.

3. **Acid Etching -** Acid etching is used to dissolve the weak surface layer known as laitance thereby opening the pores, allowing penetration of the sealer coat. A solution of muriatic acid is usually used in acid etching. The type of concrete mix and finishing of given concrete will decide the required strength of acid which varies from 2% to 20%.

Fig 5.3.1: Cleaning surface by broom

Fig 5.3.2: High pressure water blasting

Fig 5.3.3: Acid etching

The acid will cause bubbling of the solution as it etches the surface concrete. Scrub and rinse the dissolved salts after the reaction of acid stops. Repeat the process if required. If the etching action was effective, then the surface will feel like fine sandpaper.

4. **Sandblasting -**It is the most effective surface preparation method. Here the concrete is light blasted with fine silica sand. The objective of sandblasting is same as acid etching. All form like weak concrete, release

Fig 5.3.4: Sand blasting

agents, dirt, laitance and contamination can be removed with sandblasting. It is more effective on walls and ceilings. However the only drawback is that It is dust producing and expensive. Sandblasting can't be done in areas containing machinery and equipment or in areas where traffic is heavy and close. Sandblasting is very effective for removing unsound or unwanted old coatings from concrete or masonry surfaces.

5.3.2 Preparation of cement mortar

For fixing tiles, sand cement mortar is used.

For prepration of cement mortar following Ingredients are required:-

1. Cement;

2. Sand;

3. Water;

4. Bonding agent

5.3.2.1 Preparing by using barrel cement mixer

1. **Mix sand & cement**. For mortar mix, you have to mix ingredients in 1:4 ratio. where 1 part of cement & 4 part of sand is used.

Fig 5.3.5: Sand and cement

2. **Use the right amount of water.** Add specified amount of clean water to the mortar mix to achieve the consistency of the mortar mix as per requirement. The amount of water added to the mix varies as per the climatic conditions, temperature humidity, wetness of sand & the variety of blend being utilized.

Fig 5.3.6: Mixing of mortar and water

    • Drier mix has less workability where as a wetter mix has more workability but lesser strength. Sufficient quantity of water is added to bring the mortar to a stiff paste of required workability /consistency.

3. **Use good quality & specific grade of sand and cement.** Cement free from lumps & good in quality should be used for mortar mix.

    • Sand used for mix should be crushed sand or natural sand. It should be free from clay, silt and fine dust.
    • A cement mortar mix of 1:4 is usually appropriate and effective for tiling works.

Fig 5.3.7: Stacking of cement bags

4. **Using additive.** Additives are added to increase the bonding strength of the mortar. Example:- mastic, epoxy etc.

5. **Precautions for use of additive in mortar:** Adding additive to your mixture will make the mortar set more quickly. Therefore work quickly when additive is used in mix. The quantity of additive to be added is as per the specification & instruction only.
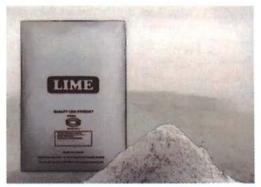
Fig 5.3.8: Additive for mixing in cement

6. **Make mix in accordance with ambient conditions:** The mortar behaves differently at different temperature. The quantity of water added to attain right consistency decides the effectiveness of mix in cold, humid or wet weather ..

7. **Obtaining right consistency of mix:** Mortar mixed to the right consistency should be able to hold onto a trowel held at right angle. The mix should also be wet enough to work easily and pour in and out of buckets.

8. **Mix in a cold temp**erature: In cold weather areas add warm water to increase the rate of hydration reaction of cement. Always ensure that the finished product must be prevented from freezing until set.

9. Wash the mixer, wheelbarrow and/or buckets. Wash all the mixing equipment before adding dry ingredients, so that mortar will slide easily and reduce wastage. Pour about half the water necessary for the batch into the mixer or tray, and pour some water into the wheelbarrows or buckets.

10. Add the dry ingredients and start mixing. First step of working with power mixer is to turn it on and to get the blades churning and then gently adding dry ingredients. Take special care not to dump them and splatter the water out, or to lose too much of the cement by clouding it.

Incase of Premix Screed:-

1 Prepare the cement mixer and bucket for screed powder mixing.

Fig 5.3.9: Effect of weather on cement mix
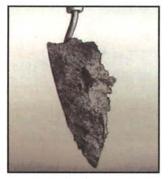
Fig 5.3.10: checking consistency of mortar

Fig 5.3.11: Prior wet mixing wheelbarrow and mixer

Fig 5.3.12: preparing mixture and bucket

2.   Place the Screed premix powder in the cement mixer.

Fig 5.3.13: Adding cement in mixer

3.   Add water to the mixer as per recommended by screed powder manufacturer.

Fig 5.3.14: Adding water in mixer

4.   Prepare & mix the bonding agent while mixing the screed.

Fig 5.3.15: Moving mortar in bucket

5.   While using hand held electric mixer, mix it till a mortar of flowable consistency is obtained.

Fig 5.3.16: Mixing of motar by hand mixer

5.3.2.2 Mixing mortar manually

1. Mortar is a mixture of cement, sand and water in certain proportion. The volume ratio of cement to sand is usually about 1:4.

2. Mix the dry ingredients. Using a small bucket or scoop put 1:4 part of cement & sand into a mixing tub/trough, wheelbarrow, cement mixer or 19 liter bucket. As per the directions on the package add any dry additives and stir the powdered mixture thoroughly.

   - As mortar will start to set quickly, so make sure to make mix of only that quantity which can be used in about two hours.

   - Additives is added to improve the workability of mortar. Additive makes the mortar more water resistant and reduces the amount of shrinkage upon curing. Additives also helps to prevent the segregation of cement and sand.

3. The mix should be made on a dry and smooth pucca (hard) surface. Soft soil should not be allowed to mix with the mortar.

4. Create a circular heap of the dry mix having a central depression and fill water in the center with the help of bucket.

5. The mixture will absorb water slowly.

6. With the help of spade continue mixing dry mix with the partially wet mix from the other side and add more water from one side.

7. Shift the mix through pans immediately to the work location.

Fig 5.3.17: Accessories required

Fig 5.3.18: Materials required

Fig 5.3.19: Mixing water and ingredients

Fig 5.3.20: Preparing mortar

5.3.3 Measurement and marking of tile

1. **Measuring up**

   • Measure the length of the area you're going to tile and then divide it by the size (length) of the tile you are going to use.

   • Then measure the width of the area and then divide by the width of a tile.

   • To find out the number of tiles needed for tiling work you should round up the number of tiles for length and width, then multiply the two results.

   • Consider the spaces taken up by doors and windows etc. & then follow the same process for any other areas.

   • As an allowance for breakages or incorrect cuts add extra 5% for wall tiles or 10% for floor tiles.

Fig 5.3.21: Measuring and marking on wall

2. **Plan your tile layout first**
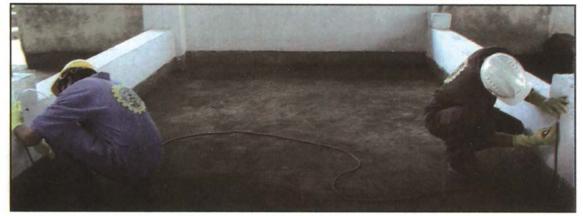
Fig 5.3.22: Marking prior to tile layout

Planning is most important to tiling work. As proper planning helps to avoid uneven spacing or poor alignment in tiling work. A consistently-sized spacer between tiles helps to make sure tiles are evenly arranged. You could use any object for a spacer such as a matchstick or a plastic spacer; it

5.3.4 Laying of tile

	Floor Tiling	
S No.	**Method statement**	**Images**
1	Place all tools & tackles near the working location.	
2	Chisel the working area as per requirement.	
3	Clean the working area prior to lay the tiles.	
4	Mark the top level in all round the permanent surfaces (400 mm high) & mark a line over it.	

5	Fix the button mark on the ridge point of the floor area (parallel edge slope 10 mm).	
6	Check button mark level with respect to reference line & align it using rubber mallet & straight edge.	
7	Fix the button mark on the valley point of the floor area (parallel edge slope 20 mm).	
8	Fix the button mark on other location (mid edges) of floor area & align using rubber mallet & spirit level.	
9	Check level of button mark using hilti tool.	

10	Spread the mortar in required thickness and ensure the top level is levelled with the help of straight edge and sprit level.	
11	Place levelling (hilti) tool & mark center line along both axis.	
12	Place spacer at the center of the marking.	
13	Apply adhesive & place the tile.	
14	Use rubber mallet to place the tile exactly	

15	Place nearby tiles in each quadrant using spacer & make a square.	
16	Now place the tiles on the periphery of the square. (Work from inward to outward direction).	
17	Assess final dimension of the tiled floor.	
18	Assess slope of the tiled floor.	
19	Assess level of the tiled floor using hilti tool.	

20	Assess tile undulation.	
21	Assess linear line of the tiled floor using line thread.	

5.3.5 Installing tile spacers

1. With the help of chalk line & laser level locate the center of the room by creating grid line, so the first tile & spacer can be placed in a straight line.
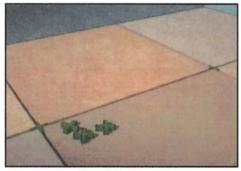
Fig 5.3.23: Locating center of room   *Fig 5.3.24:* Placing first tile for reference

2. With the help of grid line place the first tile along the line.

3. After the placement of first tile put a spacer on each corner of the tile.

4. Place the next tile against the spacer of first tile & then put spacer on remaining corner of the new tile

5. The process will repeat, expanding the wall/floor outwards using the spacers at the edges of each tile to keep a consistent distance between tiles.

6. At the edge of the floor put T shaped spacer. If required , create a "T" spacer by breaking one "leg" off a normal "plus" spacer.

Fig 5.3.26: Placing T-shaped spacers

5.3.6 Installation of tile edge trims on floor

Installation of an aluminum tile edging varies according to the support surface. For installing a metal tile edging on a wall (inside or outside corner) spread the adhesive first and then secure the trim. On the other hand, For installing an aluminum floor tile edging, the procedure is a little more complicated, as it is secured with a couple of screws.

Step 1: Planning

Planning will provide clarity on whether the tile trim is installed at the base or the corner of the wall. Place tile trim on all edges or on the edge where the tile meets another flooring material.

Fig 5.3.27: Metre box far trim cutting

Step 2: Measuring

To check how much linear trim is require for tiling work, measure the base and corners on which tile trim is to be installed.

Fig 5.3.28: Marking on trim

Step 3: Cutting

Trim should always be cut at 45 degree angles at wall edges and bases. To cut the trim, use metre box and clamps to hold the trim firmly in place. Using the channels in the box as a guide cut the trim with a hacksaw or a trim cutter and repeats for the rest of the trim lengths.

Fig 5.3.29: Drilling holes on surface

Step 4: By using a marker, mark the holes on the concrete floor at every fifteen inches. Use a drill to make the holes on the tile edging.

Step 5: Masonry drill bits & drill machines are used to drill the holes in the concrete floor. The size of drill bit should be compatible with the dowels and screws. In case of wooden sub floor, you could drive in the screws directly in the joists, without making any pilot holes.

Fig 5.3.30: Cleaning surface

Step 6: Use vacuum inches to clean the residues in every drilled holes. Work with patience and with great care.

Step 7: Now insert the plastic dowels into the holes and hit them gently with a mallet. Too much force is not required; otherwise it can damage the dowels.

Fig 5.3.31: Inserting dowels in surface

Step 8: Use screw driver to fasten the screws.

Fig 5.3.32: Screwing and placing trim edges

Step 9: The aluminum edging are also installed on the other side of the floor. For this, align the tile metal edging properly. By using the hacksaw and the metre box mark the line on the trim and cut it.

Step 10: The aluminum tile edging is placed in its position by driving in several screws. It is not sufficient to secure the edging just with screws. Therefore, it is advisable to spread a thin layer of adhesive and then lay the edging, making sure it is levelled and aligned.

Fig 5.3.33: Installing trim edges

Step 11: Next, The tile has to be cut in such a way so as to fit into location. To cut a tile, mark a line on the tiles by using a marker and a L-square. You can also use a tile cutter or wet saw to cut the

the tiles. Cut and place the tile gently to properly accomplish the task.

Fig 5.3.34: cutting tiles for laying around the trim edges

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UNIT 5.4: Vertical laying and fixing of tiles

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Perform laying and fixing of tiles vertically.

5.4.1 Laying and fixing of tiles on walls/vertical surfaces

S No.	Method statement	Images
1	Clean & chip the wall and wait for it to air-dry completely.	
2	Measure the dimension & mark the level on the wall as per reference.	
3	Install a supporting strip board with the help of tile tracker, below the second last bottom tile course.	

4	Check the level of the supporting board with the help of measuring tape.	
5	Apply adhesive over the tile & place it with reference to button mark.	
6	Now align and placed tile using rubber mallet & plumb bob.	
7	Now place the center line tile & align it with reference to other two tiles.	
8	Now follow the same procedure & place the other tile	

9	Follow the progressive assessment & check the alignment & verticality of tile work.	
10	Place the remaining tiles on the above courses by following the same pre-set pattern & progressive assessment.	
11	Make a scaffolding arrangement & then place the tile above lintel level.	
12	Check the level & verticality of the tile using spirit level & plumb bob.	
13	Place the other tiles using spacer & align them.	

14	Now place the cut tile & align it.	
15	After completion of above courses remove the supporting strip board/ tile tracker.	
16	Now start placing cut tiles at the bottom most layer of the wall using spacers.	
17	Check the alignment of the wall using spirit level.	

18	Now place the other bottom most layer tiles & align simultaneously.	
19	Assess the dimension of the wall as per assessment standard.	
20	Assess the verticality of the wall as per assessment standard	
21	Assess the alignment of the wall as per assessment standard.	

22	Assess level of the wall using water tube level.	
23	Use a grout float to spread grout over the entire surface of the wall & fill the gaps.	

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6. Grouting and curing of tiles

Unit 6.1- Grouting of tiles

Unit 6.2 - Curing of tiles

CON/N0116

Key Learning Outcomes

At the end of this module, you will be able to:

1. Discuss about grouting work;

2. Know about procedure of mixing and applying grout;

3. Know about procedure of removing grout;

4. Discuss about curing of tile; and

5. Know about curing technique for tiles.

UNIT 6.1: Grouting of tiles

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Discuss about grouting work;
2. Know about procedure of mixing and applying grout; and
3. Know about procedure of removing grout.

6.1.1 Mixing of grout

Mixing of grout is also very important. The powder grout can be mixed by hand and using a small container and a trowel.

Materials and tools required for mixing grout

1. Two buckets (one for mixing grout, one filled with clean water);
2. Grout sponge;
3. Grout float (specially designed grout-smoothing tool);
4. Grout powder;
5. Water; and
6. Stirring stick or mixer attachment for drill.

Mixing of grout

1. First, weight the powdered grout after opening the packet.
2. Pour the grout into an empty bucket.
3. Pour water and stir it into the grout powder.
4. Stir continuously and add more grout powder or water as per requirement.
5. Keep stirring until the mixture has 'smooth toothpaste' like consistency without any lumps.

Fig 6.1.1: Stirring grout by stirrer or hand held mixer

6. Leave the mixture to stand and thicken till you obtain the desired grout consistency.

7. Wait for five minutes and then give the mixture another stir. To check whether it is thick and firm enough, hold up your stirrer.

8. The grout mixture is ready to use only when it hangs from stirrer and doesn't drip.

Fig 6.1.2: Checking of grout

9. Check grout consistency: Mixing of grout is carried out to achieve the right consistency, without compromising its drying qualities, make the grout mix workable. The correct amount of water plays an important part in mixing grout. A mix is required to be moist and have a firm appearance. Ideally, upon spreading the mixed grout with a rubber float or a cement spatula, it should contain such amount of water that it shouldn't develop a cake-icing like consistency.

6.1.2 Applying grout on joints

Before start grouting, check that mortar is hardened and tile is fixed on the floor.

Step 1: First, remove the tile spacers between tiles.

Step 2: As per the instructions given by the manufacturer, mix the grout with water to optain paste-like consistency. Never forget to wear rubber gloves and safety glasses when working with grout.

Fig 6.1.3: Applying grout on joints

Step 3: Apply the grout diagonally across the joints with the help of rubber grout float, removing as much excess as grout mix as possible.

Step 4: Allow the grout to dry for minimum twenty minutes or as per recommendation by the manufacturer.

Step 5: With the help of a sponge wipe the grout lines and allow water to set the grout just below the tile surface. A grout haze remover is used to clean the tile.

Fig 6.1.4: Applying grout on joints

Step 6: Avoid traffic for minimum 72 hrs on the floor for allowing the grout to dry.

Step 7: Before applying sealer let the grout dry for the length of time recommended by the manufacturer. The sealer can be applied with a small paintbrush or a sealer applicator. Before the first five minutes clean off any smears. Then let the grout dry for at least 24 hours.

Fig 6.1.5: Wiping grout on wall

6.1.3 Checks after grouting

- After grouting, check that no space has been left between the tiles.

- Check for excessive grout on the tiles. You're likely to have a "grout haze" covering your tiles after your job is done. To clean up the grout haze - use a dry towel or use a rag to wipe at the haze until it begins to clean off. Look for any damages or cracks in the tiles and if present, rectify it.

Fig 6.1.6: Checking for excessive grout on wall

6.1.4 Removing old grout

1. **Get the necessary tools.** There are a number of tools which can be used to remove the grout.

    - The tools which will help you remove grout quickly and with much less effort are called grout removal tools or re-grout tools. These tools are helpful in removing large amount of grout.

    - Manual tools can also be used for removing grout. This grout removal tools looks like a small trowel and it is used in case power tools cannot be used.

Fig 6.1. 7: Grout removal tool

2. **Make the center incision.** Make an incision down the middle of each grout line using a grout saw, preferably with a carbide blade. Do this to all the grout lines that you want to remove.

Fig 6.1.8: Making incision

3. **Remove the grout.** A grout scraper is used to remove grout from between the pieces of tile, using the incision as a starting point. Insert the triangular tip of the grout scraper into the incision you made with the grout saw. Apply firm pressure and drag the scraper along the grout line about the length of one tile. Lift out the grout scraper, return to the starting point and repeat the process until you have removed all the grout in that area.

Fig 6.1.9: Removing grout

4. **Finish the edges.** Clean up the edges of the tile by chipping out any remaining grout

remnants. Hold the chisel so that it is parallel to the floor and the cutting edge of the chisel is touching the edge of the tile. Lightly tap the end of the chisel with the hammer until the grout is loosened. Sweep up the broken pieces of grout from between the crevices using a dust broom.

5. **Clean the tile.** As grout residue can quickly harden onto the tile surface and making it difficult to remove, cleaning action should be immediately taken up by wiping the tiles. For this, make a solution with half vinegar and half water and spray onto the tile and allow the solution to sit for a couple of minutes before wiping it away with a clean cloth.
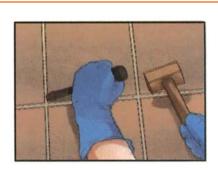
Fig 6.1.10: Cleaning edges by using chisel and hammer

Fig 6.1.11: Wiping off floor by water and cloth

Exercise

1. Materials and tools required for mixing grout are:

   a. Grout sponge

   b. Grout

   c. Water

   d. All of the above

2. Before start grouting, check that mortar is hardened and tile is fixed on the floor. True or False

3. You can walk over the surface within eight to 12 hours. True or False

4. The temperature of the tile and grout must be between:

   a. 5°C to 20°c

   b. 40°c to 80°c

   c. 15°c to 45°c

   d. 10°c to 30°C

5. Cleaning action should be taken immediately by wiping down the tile. True or false

6. A grout scraper is used to add the grout from between the pieces of tile. True or False

UNIT 6.2: Curing of tiles

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Discuss about curing of tile; and

2. Know about curing technique for tiles.

6.2.1 Curing of tile

Allow the grout to cure as per the product directions for the recommended period of time. For curing, the grouted area should remain dry and get adequate ventilation.

- Some additives may slow down the process of curing of the grout.

- Good wet mopping can be done 1-2 times per day for 3 days. This will ensure the grout is moist and reduce the chance of curing cracks.

Fig 6.2.1: Wait for curing of grout

- For slow curing of grout, mist it twice a day for 3 days.

- Avoid walking over the surface for 8 to 12 hours to avoid getting debris and dirt into the grout lines.

- Maintain an optimum curing temperature of S0°F and 80°F (10°C to 30°C) of the tile and grout for proper curing.

- Always wear gloves and use eye protection.

Fig 6.2.2: Mopping after curing of grout

- Clean off remaining residues after the grout has cured.

7. Working effectively in a team

Unit 7.1- Effective communication with others

Unit 7.2 - Working in a team

Key Learning Outcomes 💡

At the end of this module, you will be able to:

1. Know about effective communication skills;

2. Know about oral and written communication;

3. Know about how to communicate others at workplace;

4. Know about working as a team; and

5. Know about supporting colleagues at working;

UNIT 7.1: Effective communication with others

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Know about effective communication skills

2. Know about oral and written communication

3. Know about how to communicate others at workplace.

6.1.1 Mixing of grout

Communication is a vital part of everyday lives. Whenever interact with people individually or in groups, there is communication taking place. This brings us to a very important question, what exactly is communication?

What is communication?

Communication is about the sharing and distribution of information. It is only effective when the message from one person is fully understood by the person they have conveyed it to.

Communication process:

The communication process can be explained using the following flow chart.
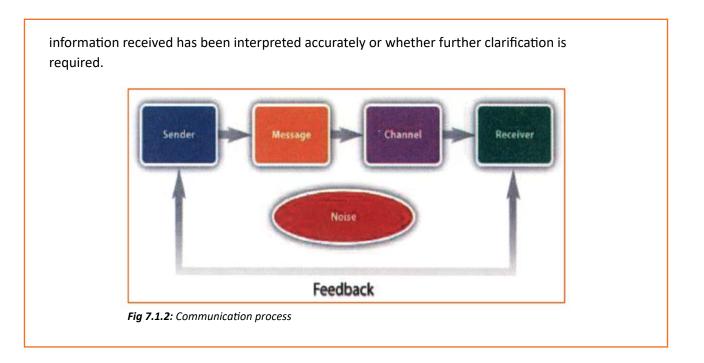
- For any type of communication to have a purpose, it should involve at least 2 individuals one sending the information and other receiving it.

- The sender will forward the information in form of a message, (a message is a written, oral or recorded piece of information) A message can be anything ranging from sentences we speak, our expressions, to drawings and instruction sheets that we receive.

- The channel is the mode through which the receiver will receive the message. For E.g. if we are sending the message via e-mail then email is the channel of communication.

- It is important to mention here that the interpretation of message is completely dependent on the receiver. This means that if the message contains conflicting or contradicting information, in such case the information becomes dependent on the

Fig 7.1.1: Measurement and marking

interpretation of receiver. Thus, it is important to convey a clear and precise message

- Feedback is given by the receiver to the sender. This helps to understand whether the

information received has been interpreted accurately or whether further clarification is required.

Fig 7.1.2: *Communication process*

7.1.1.1 Types of communication

There are various means and ways to communicate, a few of them have been listed below:

- a letter, note, card, memo, list, diary entry, email, text message, social media

- a conversation (in English or other language)

- body language, facial expressions, crossing your arms or legs, leaning forward or back

- the use of signs, graphs, pictures or charts

- pointing to something, waving, putting your hand up

- Tapping someone on the shoulder to gain their attention.

The modes of communication can be broadly classified into three types

1. Verbal communication

2. Nonverbal communication

3. Written communication

Verbal communication

Verbal communication refers to messages and information transferred orally. This can be in form of instructions, telephonic conversations, face to face conversations etc. Effective oral communication requires a person to have a clear voice and idea of the topic of communication. For Example: To take or give orders on a job site, a worker must communicate with others effectively. When he speaks, others must be able to understand what he is saying and apply the information he is conveying to their work. He must be able to talk with people from different backgrounds and education levels. This requires the skill to communicate to a person's level of understanding without being condescending or insulting.

Fig 7.1.3: Verbal communication

Non verbal communication

Non-verbal communication is a term that describes the medium of communication we use in order to enhance our verbal communication. Non-verbal communication includes body language, gestures, facial expression, eye contact, signboard, safety rules, safety tags, sketches and even photographs.

Often, people will pay more attention to non-verbal messages than what someone is saying, particularly if the two are contradictory, e.g. a person is making positive comments, but wears a frown and has their arms crossed, suggesting defiance. We need to be aware of our own nonverbal behavior, since we can often communicate things unintentionally

Non-verbal behavior when dealing with others

Being aware that your client's body language can assist enormously in understanding what is really being said beyond the level of the words spoken. It is important to be cautious of interpreting body language on the basis of a single gesture. Ensure your body language gives the message that you are friendly and open to suggestions.

Take a look at the table following, which shows body language examples that project a positive or negative stance.

Positive body language includes	Negative body language includes
• looking at the other person's face • making frequent eye contact • nodding and smiling as other person speaks your arms • uncrossing your arms • having open hand gestures • relax fingers and hands • if standing, turn towards the other person • sitting with your legs uncrossed • leaning slightly towards the other person • sitting when the other person sits, standing when the other person stands • maintaining a relaxed posture	• avoiding looking at the other person at all • avoiding the other person's eyes or staring aggressively repeatedly licking your lips or clearing your throat • repeatedly licking your lips or clearing your throat • keeping your arms folded • clasping your hands tightly together • banging the table or pointing at another person • sitting with your legs crossed particularly if you swing one leg • leaning away from the other person • striding around the room disregarding the other person's body language

Table 7.1.1: Difference between positive and negative body language

Written Communication

Written communication refers to the mode of communication in which messages are transferred through written mode. This can be in the form of SMS or through other messaging applications, E mails, Letters etc. Effective written communication requires a person to have a good command of the language and vocabulary, further the person should be able to read and write in the required dialect.

7.1.2 Oral communication
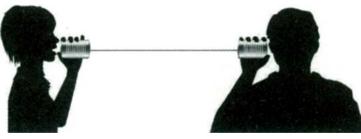
Fig 7.1.4: Oral communication

Strong and effective speaking and listening skills are required to ensure that audience understands clearly what is being spoken about by the communicator. In order to have an effective communication, two-way communication and dialogue are recommended.

Construction professionals frame and build houses, and other buildings. Besides having the physical strength and hands-on aptitude required by the specific job, a successful construction worker needs good communication skills to convey abstract ideas or thoughts between his colleagues.

Mason tiling has to possess strong oral communication skills, as he/she has to interact with coworkers and supervisors for various routine activities.

Listening Skills

The ability to listen and follow instructions is an important part of a construction worker's life. If a worker has to know how to complete his/her tasks then he/she should have good listening skills. The lack of listening skills can put the worker out of a job. In the absence of clarity, a mason tiling should ask questions to complete his/her job successfully.

Reading

Reading also plays a role in construction as the mason tiling read drawings that describe how the job must be completed. A mason tiling must be able to effectively read and interpret the drawings to know how to meet engineer or code specifications. Without reading skills, a mason tiling cannot complete the work he/she is assigned.

Vocabulary

A mason tiling needs to have a working knowledge of the vocabulary associated with his/her particular job. He/she should know and understand the proper names of tools, processes, methods and techniques used by the construction trade in which he/she is performing the job.

Written Skills

Construction workers need good written communication skills because of the communication technology available in the field. If Mason tiling receives directions or information in the field through instruction sheets, hand sketches, he should be able to interpret these to survive. A successful mason tiling masters written communication skills to interact with supervisors via these means. This requires accurate spelling, grammar and punctuation skills to communicate ideas clearly and succinctly

7.1.3 Communication with others

Ways to Communicate Effectively in the Workplace

1. **One on One:** People reciprocate well to a one on one communication. It is essential to establish eye contact during such communication to ensure it is meaningful and impactful.

2. **Be Confidence and Serious:** It is essential that during conveying a message, a person displays confidence and conveys seriousness so that the conversation makes an impact. Team members may treat information with disdain if you are not serious..

3. **Use Simple Words:** In order to have a meaningful and effective communication with your subordinates and seniors, it is devisable to use simple words which could be easily understood. Use of difficult words may cause misunderstandings and waste of time and effort.

4. **Visuals:** Use visuals for better comprehension so that workers are able to not just hear the message but can also see it.

Fig 7.1.5: Seriousness about work

5. **Be a good listener:** In order to communicate effectively, be a good listener too. Encourage team members to share their views and communicate openly.

6. **Use effective Body Language:** Body language plays an important role in communicating with the team members. It is advisable to smile, make eye contact, shake hands and sit/stand up right to have effective body language.

Fig 7.1.6: Visual communication

7. **Maintain Appropriate Tone of Voice:** While communicating your messages, use appropriate tone of voice to avoid misunderstandings.

8. **Avoid Unnecessary Repetition:** It is advisable to repeat instructions/messages only in case it is not clearly understood by team members.

9. **Create a Receptive Atmosphere:** Avoid tense environment as communication in a tense environment is usually misunderstood and message conveyed might not be retained well.

10. **Be Humorous:** Calm down an unfriendly and tense atmosphere by being humorous at times. It is a proven highly effective method of relieving tension.

Fig 7.1.17: Listening

11. **Be Articulate:** Communicating in a simple, clear and precise manner will make easier to your team members to understand your message. When communicating with your team members do not mumble words or speak too quickly. It will not give clarity of the subject to the listener. It also shows a lack of confidence on your part. Mumbling displays lack of confidence and reduces clarity of the subject to the listener.

12. **Encourage Feedback:** Communication is a two way process. The process is complete only when the feedback is received. It shows that the message is well understood by the listener or the receiver.

13. **Be expressive with your Hands:** Use your hands and body to demonstrate your message. This indicates seriousness of content while communicating with the team members.

14. **Be Appreciative:** Always appreciate your team members for listening to you and remember to thank them for their time.

7.1.4 Information to be communicated with the team

It is very important to share information with the team members to avoid delays in the work and to prevent processes going wrong. Information should be shared within team members and to other teams who are directly or indirectly involved in the work.
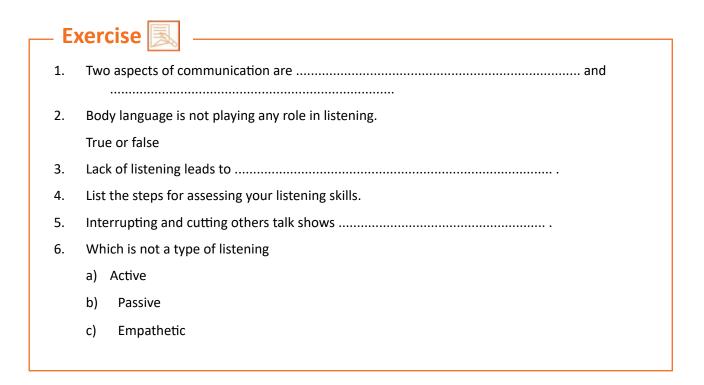
Information that need to be shared within a team consist of:

Fig 7.1.9: Communication in the team

- List of materials required and their availability.

- List of tools and machines required and their availability.

- Quality of the materials available.

- Process details should be shared with team members.

- Provide guidance and share related information with colleagues in case of confusion.

- Communicate use of appropriate work technique and method.

- Seek advice whenever required.

- Communicate effectively the issues that may affect the quality of the work.

Right mode of communication and communicating at the appropriate time is the key to build healthy team relationship and to get the tasks completed on time.

Exercise

1. Two aspects of communication are .... and
    ....

2. Body language is not playing any role in listening.

    True or false

3. Lack of listening leads to ....

4. List the steps for assessing your listening skills.

5. Interrupting and cutting others talk shows ....

6. Which is not a type of listening

    a) Active

    b) Passive

    c) Empathetic

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UNIT 7.2: Working in a team

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Know about working as a team

2. Know about supporting colleagues at work place

3. Know about how to work in a team

7.2.1 Team work

At workplace, you have to handle types of works and obligations. A few works will oblige you to work without anyone else. Many works will require at least two individuals to cooperate to effectively total the work. You are then member of a "Team."

As a construction worker, mason tiling has to work alongside many other people. Mason Tiling requires the support of subordinates for assistance in completion of the task while he/she needs the support of superiors for guidance in completion of the task. This ascertains that tiling work is a group effort rather than an individual effort. This group effort for completing a given task is called team work.

What is a Team?

Team: Teams are groups of people who work together for a common purpose and possess skill sets which are complimentary to each other.

Fig 7.2.1: Team work

To accomplish the goal, it is required that all team members work in unison putting both individual

and group effort. For a person who is a new employee, working in a team helps in better training and understanding, thereby increasing the decision making ability and job skills.

What makes a team "successful"?

Teams which have clear cut goals, a set timeline and undertake responsibility for the outcome are considered successful teams. As a mason tiling, you will be provided with the requirements of each job, time for completion and consequences for not completing the work on time.

Prior to commencement of a job, it is essential to analyze strengths of each member, so that suitability of member for the job can be assessed.

The issues need to be considered when working in a team:

1. **Identifying Task requirement -** identify the task, scope of work and timelines for effective completion of work.

2. **Executing work -** after receiving the instructions, it is necessary to plan the execution of work. This may include collection of tools and material, following laid out procedures etc.

As a team member, you are expected to:

Fig 7.2.2: Characteristics of a team

- Maintain good relationships with your team members

- Offer support and guidance when needed

- Help determine who does what and when

- Communicate any issues or concerns to the appropriate people

- Play a part in developing a productive and cohesive team

7.2.2 Working well with colleagues

Treat others with respect and dignity

Working together requires treating each other with mutual respect and valuing their inputs and ideas. This build a trusting foundation for healthy work relationship.

Manage your emotions

Anger and anxiety are most common emotions observed at the workplace. You must exert a sense of calm and stability to manage your emotions well. This helps improve the work environment even in stressful work situations.

A good method to manage your emotions is to practice relaxation techniques:

- Think positively

- Practice deep breathing

- Listen to relaxing music

Fig 7.2.3: Working with colleagues

Communicate effectively

To maximise efficiency, effective communication plays an important role in the workplace. Communication breakdowns require time and energy to fix.

Key components of communication:

- Choice of words
- Tone of voice
- Body language
- Relationships between communicating parties

Active listening and Discretionary Speech

Active listening shows you are genuinely interested in others and it also conveys respect to the speaker. Additionally, saying the right things at the right time is important. In order to do this, you should work towards thinking before you speak.

Be responsible for your assigned role for the team

Avoid being a lazy member who needs others to make up for his/her inaction. Responsibility in all matters will earn you the respect from your organisation.

Acknowledge Contribution

Appreciation for work done fosters affirmation and validation. A word of thanks or appreciation helps improve the team ethic.

Make work fun and rewarding

Work should not be boring and repetitive. Adding 'play' to boost innovation at executing tasks at hand can help bring out-of-the-box solutions to problems.

7.2.3 What are the issues that should be reported?

It is very important to report to the supervisor/ Site Engineer of all the issues that may affect work or quality. Immediate reporting of issues helps the supervisor's/site engineers to get them resolved before they effect the work quality or before any damage is caused to the site / workers. Immediately report to your supervisor If:

- Materials are not available on time.
- Tools / machines are not available on time.
- Machines are not working properly.
- Materials used do not meet the quality standards.

- PPE are not available.
- An employee is not using PPE.
- If you find that someone is doing an operation in wrong way.
- There is some short coming at the work site that may affect the final quality.
- You have any doubt regarding the material/procedure.
- If your operation is taking more than expected time and effecting the deadline to be met.
- Tools and tackles are not stored properly by the co-workers.
- Electrical fittings are not properly connected and insulated.
- Hazardous materials are not kept at designated place with proper marking.

Problems in your work should not affect others productivity, and problems in others work should not affect your productivity.

Exercise

1. What should team members do to make the team more productive?

2. What are the benefits of communicating information with the team members?

3. Which of the Following is not a Type of Team?
    a. Cross Functional
    b. Virtual
    c. Problem Solving
    d. Individual

4. Individuals make good decisions much quicker than teams do.

    True or False

5. What are habits?

    a. A habit is a behavior that is repeated frequently.

    b. A habit is a issue that is repeated once.

    c. A habit is a behavior that is repeated.

    d. A habit is a behavior that can't be repeated.

6. Why should issues be reported to supervisor?

7. Risk is expressed in terms of probability and impact.

   True or False

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8. Plan and organise work to meet expected outcomes

Unit 8.1 - Prioritise work activities to achieve desired results

Unit 8.2 - Organising resources

Unit 8.3 - Sequence of work for mason tiling

CON/N8002

Key Learning Outcomes

At the end of this module, you will be able to:

1. learn the importance of time;

2. plan activities and schedules;

3. learn the importance of targets and time lines set by supervisors;

4. prioritise tasks to achieve desired results;

5. plan desired resources prior to commencement of work;

6. Identify and organise resources prior to commencement of work;

7. Organise correct tools and materials for completion of work; and

8. Use and engage resources and manpower in appropriate manner.

UNIT 8.1.1 Prioritize work

Unit Objectives 🎯

At the end of this unit, you will be able to:

1.   Know about working as a team

2.   Know about supporting colleagues at work place

3.   Know about how to work in a team
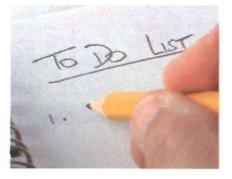
8.1.1 Prioritize work

Steps for prioritizing works that have a lot of moving parts:

1.   **listing down daily task:** Make a list of your daily activities. Make a list of daily tasks to be completed while considering their priority.

    list of tasks for tiling work:

    •   Selection of tools and material required for tiling

    •   Understand layout of tiling work

    •   Preparation of surface for tiling

    •   Measurement and marking on surface

    •   Marking and cutting of tile

    •   Preparation of adhesive or mortar

    •   Applying adhesive or mortar on surface

    •   Placing and fixing tiles on surface

    •   Placing and fixing spacers between the tiles

    •   Removing spacers after hardening of mortar

    •   Preparation of grout

    •   Applying grout on floor

    •   Curing of grout

    •   Applying sealant on grout

2.   **Recognising urgent vs. important task:** Identify
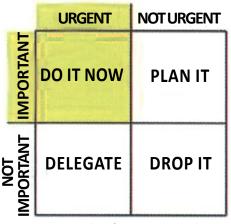
Fig 8.1.2: Identifying priority work

the task that needs immediate attention. Ensure that the work gets completed as planned without missing any commitments or dependency of completion **of your work on others.**

3. **Evaluating the value of the task:** The important work should be given highest value. Identify which types of task are on top priority over the others. It will help increase your team's efficiency.

4. **Ordering task by estimating efforts:** Check and estimate efforts that will go in performing the task. Target to start the task that will require more amount of time.

Fig 8.1.3: Priority work

5. **Flexibility and adaptability in task completion:** Change is evident. Be flexible and adapt to the priorities that may change.

6. **Focusing on the priorities:** Prioritise your task by analysing and estimating the efforts and focus on the derived priorities.

8.1.2 Optimizing work

Schedule: Scheduling means planning an activity to take place at a particular time. Schedule should always be little flexible.

The benefits of scheduling are:
• Helps in increasing efficiency.
• Helps in decreasing stress
• Achievement of desired results as per deadlines.

While scheduling one should remember to:
• Analyse how much time each task will take and schedule the task accordingly.
• Plan in such a way that multiple jobs are not assigned to the same timeline unless planning to multitask.
• It is essential to share the prepared schedule with team members for successful execution of tasks.

Multitask: Multitasking means the art of doing multiple tasks at the same time. To multitask efficiently, following things should be taken care: Allot time to routine activities before juggling with two or three tasks.

• Allot time to routine activities before juggling with two or three tasks.
• Combine the correct activities for efficient multitasking.
• Review how multitasking affects performance of tasks.

Track the work Progress: The progress of work can be tracked by

- Reviewing work progress at regular intervals.

- Analysing the performance and making amendments to the scheduling of tasks so as to streamline the plan.

- Finding out the reasons for deviation from the schedule.

- Shuffling the order of tasks to avoid boredom without affecting the sequence.

8.1.2 Optimizing work

Successful completion of work is possible if you plan and organise your time efficiently. Timely planning will help you to overcome all challenges in the way to success

Step 1: Planning based on scope of work: Plan work activity as per the identified scope of work like selecting appropriate worke based on a requirement of work.

Step 2: Preparing a check list: List out the activities and further break it into smaller units. This will help you in keeping track and timely completion of a task. It will be possible by assigning the work to the worker and dividing the responsibility.

Step 3: Adhering to the timelines: Complete the work according to the established timelines. Allocate the work as per the completion date and make sure that it gets completed within the timeframe.

Fig 8.1.4: Measuring & marking on tiles

Fig 8.1.5: Marking on tiles

Updating your calendar as per the end date of the task will help in minimizing the work load ..

Step 4: Creating plan of action: Charting out action plan and anyalysing possible difficulties will help you keep the task on track. This is possible if you check all the required material in advance for the task as per the plan of action. It also includes arranging for replacement of worker in case of emergency.

Fig 8.1.6: Cutting a/tiles

Step 5: Communicating regularly about the updates: Give clear instructions to the team members of the desired outcome. Update them at regular intervals.

Step 6: Managing time is a key to success: Prioritising is essential to reduce stress at work and be more efficient and productive.

Fig 8.1.7: Placing a/tiles

Material Planning

Material planning involves checking the availability of all the raw materials that would be required in the tiling process and to ensure that they are available at the construction site. The basic materials required in tiling work are:

- Tiles
- Cement
- Aggregates
- Water
- Grout

Fig 8.1.8: Tiling work under progress

Fig 8.1.9: Finishing work

The mason tiling should check with his supervisor that all these are available on the site in the required quantity.

- Quality of the materials is as per the standards

- Material is accessible at the site to minimize the distance to carry and avoid unnecessary delay.

- Stacking and storing as per the guidelines.

- Reporting the material shortage in advance to the super~visors so that it can be arranged in advance.

Proper material planning helps in:

- Utilising manpower to avoid wastage of time due to unavailability of the material.

- Curtailing the project cost by minimizing delay.

- Achieving the deadlines.

- Reducing the wastage of material due to unavailability of other necessary material.

Work Planning

- Division of work among the team members

- Assigning the work as per individual capability and skills.

- Allocating sufficient manpower to complete the task as per the work plan

- Providing all the workers necessary tools and equipment required for the work.

- Organising work output so that all the processes are completed without any delay for the other.

- Mentoring and guiding all the workers as and when required.

Notes

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UNIT 8.2: Organising resources

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Identify and organise resources prior to commencement of work

2. Organise correct tools and materials for completion of work

3. Use and engage resources and manpower in appropriate manner

4. Organise self, resources, work environment and time efficiently

8.2.1 Organisation of Resources

Organising is a process of engaging co-workers and developing a productive relationship amongst them for the purpose of completing a given task. Organising and planning are the two most important factors for efficient and successful job.

Organising includes:

- Identification of activities.

- Grouping and classification of activities

- Identification of appropriate tools, equipments and materials before starting work.

- Identification and arranging proper Manpower.

- Assignment of duties to appropriate people.

- Creation and delegation of responsibilities among co-workers for completion of work.

Fig 8.2.1: *Resource organization*

- Coordination of work among the team and across teams.

- Organising training or providing guidelines to avoid damage of equipments.

- Planning and organising work environment to avoid accidents.

- Organising resources to avoid waste of materials.

Benefits of Organising

Being organised helps to

- Make better decisions.

- Identify available resources.
- Anticipate needs and problems.
- Get work done accurately by avoiding costly mistakes.
- Be more efficient and productive.
- Complete desired tasks and activities.

Monitoring

Monitoring is done to ensure that everything goes according to set rules and timelines

Steps for Monitoring

- Prioritising work activities & create a work plan for completing own work
- Measuring actual work progress of self and sub ordinates at regular intervals
- Comparing actual work done with the plan and identifying the gaps if any
- Taking corrective measures to rectify the gaps.

Fig 8.2.2: Levelling of butter mark

Optimising use of Resources

Resources can be used in an optimum way by following the guidelines mentioned below.

- Analyse the capabilities of individuals and the characteristics job requirements
- Match the right people with the right job
- Rotate jobs to avoid boredom
- Rotate people to give them varied experience and training opportunities
- Make provisions for absenteeism

Exercise

1. A market survey is important because it tells you:

    a. How many & what types of people are shopping at a store.

    b. Tells you what the customer will buy.

    c. Tells you how much the customer will pay for the product.

    d. All of the above.

2. Steps to prioritizing projects are:

    a. Collect a list of all your tasks

    b. Identify urgent vs. important:

    c. Order tasks by estimated effort

    d. All of the above

3. Scheduling means plan an activity to take place at a particular time. True or False

4. Material planning involves checking the availability of all the raw materials that would be required in the concreting process. True or False

5. Proper material planning helps in:

    a. Reducing the project cost by minimizing delay

    b. Helps in achieving the deadlines.

    c. Reduces the wastage of material due to unavailability of other necessary material.

    d. All of the above

6. Being organised helps to:

    a. Make better decisions.

    b. Anticipate needs and problems.

    c. Get work done accurately by avoiding costly mistakes.

    d. All of the above

7. The purpose of controlling is to ensure that everything goes as per set guidelines and standards.

    True or False
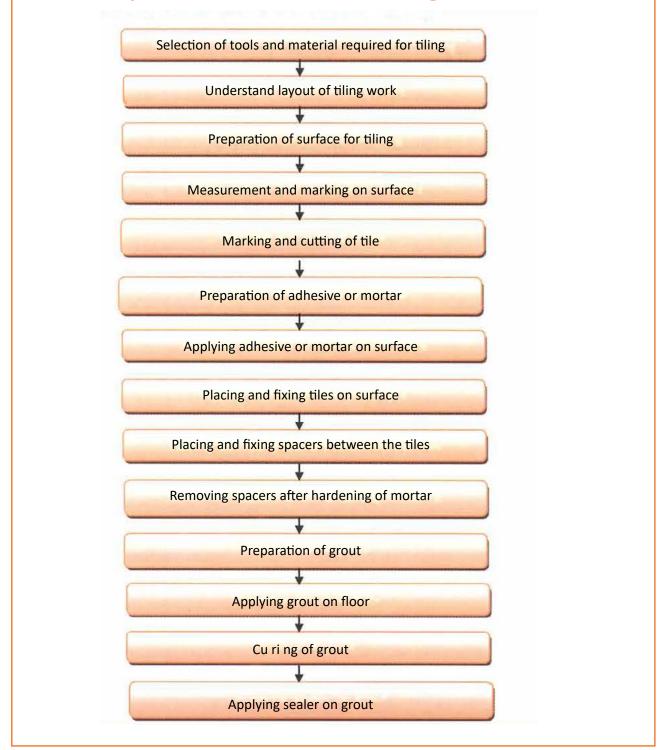
UNIT 8.3: Sequence of work for mason tiling

Unit Objectives ⊙

At the end of this unit, you will be able to:

1. Know about work sequence of tiling job.

8.3.1 Sequence of work for mason tiling

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┌──────────────────────────────────────────────────┐
│ Selection of tools and material required for tiling │
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┌──────────────────────────────────────────────────┐
│           Understand layout of tiling work          │
└──────────────────────────────────────────────────┘
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┌──────────────────────────────────────────────────┐
│            Preparation of surface for tiling         │
└──────────────────────────────────────────────────┘
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┌──────────────────────────────────────────────────┐
│          Measurement and marking on surface          │
└──────────────────────────────────────────────────┘
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┌──────────────────────────────────────────────────┐
│              Marking and cutting of tile             │
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┌──────────────────────────────────────────────────┐
│          Preparation of adhesive or mortar           │
└──────────────────────────────────────────────────┘
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┌──────────────────────────────────────────────────┐
│         Applying adhesive or mortar on surface       │
└──────────────────────────────────────────────────┘
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┌──────────────────────────────────────────────────┐
│            Placing and fixing tiles on surface       │
└──────────────────────────────────────────────────┘
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│      Placing and fixing spacers between the tiles    │
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│      Removing spacers after hardening of mortar      │
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│                 Preparation of grout                 │
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│                Applying grout on floor               │
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│                  Cu ri ng of grout                   │
└──────────────────────────────────────────────────┘
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┌──────────────────────────────────────────────────┐
│                Applying sealer on grout              │
└──────────────────────────────────────────────────┘
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9. Employability & Entrepreneurship Skills

Unit 9.1- Personal Strengths & Value Systems

Unit 9.2 - Digital Literacy: A Recap

Unit 9.3 - Money Matters

Unit 9.4 - Preparing for Employment & Self Employment

Unit 9.5 - Understanding Entrepreneurship

Unit 9.6 - Preparing to be an Entrepreneur

Key Learning Outcomes 💡

At the end of this module, you will be able to:

1. Explain the meaning of health
2. List common health issues
3. Discuss tips to prevent common health issues
4. Explain the meaning of hygiene
5. Understand the purpose of Swacch Bharat Abhiyan
6. Explain the meaning of habit
7. Discuss ways to set up a safe work environment
8. Discuss critical safety habits to be followed by employees
9. Explain the importance of self-analysis
10. Understand motivation with the help of Maslow's Hierarchy of Needs
11. Discuss the meaning of achievement motivation
12. List the characteristics of entrepreneurs with achievement motivation
13. List the different factors that motivate you
14. Discuss the role of attitude in self-analysis
15. Discuss how to maintain a positive attitude
16. List your strengths and weaknesses
17. Discuss the qualities of honest people
18. Describe the importance of honesty in entrepreneurs
19. Discuss the elements of a strong work ethic
20. Discuss how to foster a good work ethic
21. List the characteristics of highly creative people
22. List the characteristics of highly innovative people
23. Discuss the benefits of time management
24. List the traits of effective time managers
25. Describe effective time management technique
26. Discuss the importance of anger management

Describe anger management strategies

27. Discuss tips for anger management
28. Discuss the causes of stress
29. Discuss the symptoms of stress
30. Discuss tips for stress management
31. Identify the basic parts of a computer
32. Identify the basic parts of a keyboard
33. Recall basic computer terminology
34. Recall basic computer terminology

35. Recall the functions of basic computer keys
36. Discuss the main applications of MS Office
37. Discuss the benefits of Microsoft Outlook
38. Discuss the different types of e-commerce
39. List the benefits of e-commerce for retailers and customers
40. Discuss how the Digital India campaign will help boost e-commerce in India
41. DescribeExplain how you will sell a product or service on an e-commerce platform
42. Discuss the importance of saving money
43. Discuss the benefits of saving money
44. Discuss the main types of bank accounts
45. Describe the process of opening a bank account
46. Differentiate between fixed and variable costs
47. Describe the main types of investment options
48. Describe the different types of insurance products
49. Describe the different types of taxes
so. Discuss the uses of online banking
51. Discuss the main types of electronic funds transfers
52. Discuss the steps to prepare for an interview
53. Discuss the steps to create an effective Resume
54. Discuss the most frequently asked interview questions
55. Discuss how to answer the most frequently asked interview questions
56. Discuss basic workplace terminology
57. Discuss the concept of entrepreneurship
58. Discuss the importance of entrepreneurship
59. Describe the characteristics of an entrepreneur
60. Describe the different types of enterprises
61. List the qualities of an effective leader
62. Discuss the benefits of effective leadership
63. List the traits of an effective team
64. Discuss the importance of listening effectively
65. Discuss how to listen effectively
66. Discuss the importance of speaking effectively
67. Discuss how to speak effectively
68. Discuss how to solve problems
69. List important problem solving traits

70. Discuss ways to assess problem solving skills

71. Discuss the importance of negotiation

72. Discuss how to negotiate

73. Discuss how to identify new business opportunities

74. Discuss how to identify business opportunities within your business

75. Understand the meaning of entrepreneur

76. Describe the different types of entrepreneurs

77. List the characteristics of entrepreneurs

78. Recall entrepreneur success stories

79. Discuss the entrepreneurial process

80. Describe the entrepreneurship ecosystem

81. Discuss the government's role in the entrepreneurship ecosystem

82. Discuss the current entrepreneurship ecosystem in India

83. Understand the purpose of the Make in India campaign

84. Discuss the relationship between entrepreneurship and risk appetite

85. Discuss the relationship between entrepreneurship and resilience

86. Describe the characteristics of a resilient entrepreneur

87. Discuss how to deal with failure

88. Discuss how market research is carried out

89. Describe the 4 Ps of marketing

90. Discuss the importance of idea generation

91. Recall basic business terminology

92. Discuss the need for CRM

93. Discuss the benefits of CRM

94. Discuss the need for networking

95. Discuss the benefits of networking

96. Understand the importance of setting goals

97. Differentiate between short-term, medium-term and long-term goals

98. Discuss how to write a business plan

99. Explain the financial planning process

100. Discuss ways to manage your risk

101. Describe the procedure and formalities for applying for bank finance

102. Discuss how to manage your own enterprise

103. List important questions that every entrepreneur should ask before starting an enterprise

UNIT 9.1: Personal Strengths & Value Systems

Unit Objectives 🎯

At the end of this unit, you will be able to:

- Explain the meaning of health
- List common health issues
- Discuss tips to prevent common health issues
- Explain the meaning of hygiene
- Understand the purpose of Swacch Bharat Abhiyan
- Explain the meaning of habit
- Discuss ways to set up a safe work environment
- Discuss critical safety habits to be followed by employees
- Explain the importance of self-analysis
- Understand motivation with the help of Maslow's Hierarchy of Needs
- Discuss the meaning of achievement motivation
- List the characteristics of entrepreneurs with achievement motivation
- List the different factors that motivate you
- Discuss the role of attitude in self-analysis
- Discuss how to maintain a positive attitude
- List your strengths and weaknesses
- Discuss the qualities of honest people
- Describe the importance of honesty in entrepreneurs
- Discuss the elements of a strong work ethic
- Discuss how to foster a good work ethic
- List the characteristics of highly creative people
- List the characteristics of highly innovative people
- Discuss the benefits of time management
- List the traits of effective time managers
- Describe effective time management technique
- Discuss the importance of anger management
- Describe anger management strategies
- Discuss tips for anger management
- Discuss the causes of stress
- Discuss the symptoms of stress
- Discuss tips for stress management

9.1.1 Health, Habits, Hygiene: What is Health

As per the World Health Organization (WHO), health is a "State of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." This means being healthy does not simply mean not being unhealthy - it also means you need to be at peace emotionally, and feel fit physically. For example, you cannot say you are healthy simply because you do not have any physical ailments like a cold or cough. You also need to think about whether you are feeling calm, relaxed and happy.

Common Health Issues

Some common health issues are:
- Allergies
- Asthma
- Skin Disorders
- Depression and Anxiety
- Diabetes
- Cough, Cold, Sore Throat
- Difficulty Sleeping
- Obesity

Tips to Prevent Health Issues

Taking measures to prevent ill health is always better than curing a disease or sickness. You can stay healthy by:
- Eating healthy foods like fruits, vegetables and nuts
- Cutting back on unhealthy and sugary foods
- Drinking enough water everyday
- Not smoking or drinking alcohol
- Exercising for at least 30 minutes a day, 4-5 times a week
- Taking vaccinations when required
- Practicing yoga exercises and meditatio

How many of these health standards do you follow? Tick the ones that apply to you.

1. Get minimum 7-8 hours of sleep every night. ☐
2. Avoid checking email first thing in the morning and right before you go to bed at night. ☐
3. Don't skip meals - eat regular meals at correct meal times. ☐
4. Read a little bit every single day. ☐
5. Eat more home cooked food than junk food. ☐

6. Stand more than you sit. ☐

7. Drink a glass of water first thing in the morning and have at least 8 glasses of water through the day. ☐

8. Go to the doctor and dentist for regular checkups. ☐

9. Exercise for 30 minutes at least 5 days a week. ☐

10. Avoid consuming lots of aerated beverages. ☐

What is Hygiene?

As per the World Health Organization (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases." In other words, hygiene means ensuring that you do whatever is required to keep your surroundings clean, so that you reduce the chances of spreading germs and diseases.

For instance, think about the kitchen in your home. Good hygiene means ensuring that the kitchen is always spick and span, the food is put away, dishes are washed and dustbins are not overflowing with garbage. Doing all this will reduce the chances of attracting pests like rats or cockroaches, and prevent the growth of fungus and other bacteria, which could spread disease.

How many of these health standards do you follow? Tick the ones that apply to you.

1. Have a bath or shower every day with soap - and wash your hair with shampoo 2-3 times a week. ☐

2. Wear a fresh pair of clean undergarments every day. ☐

3. Brush your teeth in the morning and before going to bed. ☐

4. Cut your fingernails and toenails regularly. ☐

5. Wash your hands with soap after going to the toilet. ☐

6. Use an anti-perspirant deodorant on your underarms if you sweat a lot. ☐

7. Wash your hands with soap before cooking or eating. ☐

8. Stay home when you are sick, so other people don't catch what you have. ☐

9. Wash dirty clothes with laundry soap before wearing them again. ☐

10. Cover your nose with a tissue/your hand when coughing or sneezing. ☐

See how healthy and hygienic you are, by giving yourself 1 point for every ticked statement!

Then take a look at what your score means.

Your Score

0-7/20: You need to work a lot harder to stay fit and fine! Make it a point to practice good habits daily and see how much better you feel!

7-14/20: Not bad, but there is scope for improvement! Try and add a few more good habits to your daily routine.

14-20/20: Great job! Keep up the good work! Your body and mind thank you!

Swachh Bharat Abhiyan

We have already discussed the importance of following good hygiene and health practices for ourselves. But, it is not enough for us to be healthy and hygienic. We must also extend this standard to our homes, our immediate surroundings and to our country as a whole.

The 'Swachh Bharat Abhiyan' (Clean India Mission) launched by Prime Minister Shri Narendra Modi on 2nd October 2014, believes in doing exactly this. The aim of this mission is to clean the streets and roads of India and raise the overall level of cleanliness. Currently this mission covers 4,041 cities and towns across the country. Millions of our people have taken the pledge for a clean India. You should take the pledge too, and do everything possible to keep our country clean!

What are Habits?

A habit is a behaviour that is repeated frequently. All of us have good habits and bad habits. Keep in mind the phrase by John Dryden: "We first make our habits, and then our habits make us." This is why it is so important that you make good habits a way of life, and consciously avoid practicing bad habits.

Some good habits that you should make part of your daily routine are:

• Always having a positive attitude

• Making exercise a part of your daily routine

• Reading motivational and inspirational stories

• Smiling! Make it a habit to smile as often as possible

• Making time for family and friends

• Going to bed early and waking up early

Some bad habits that you should quit immediately are:

• Skipping breakfast

• Snacking frequently even when you are not hungry

• Eating too much fattening and sugary food

• Smoking, drinking alcohol and doing drugs

• Spending more money than you can afford

• Worrying about unimportant issues

• Staying up late and waking up late

Tips

• Following healthy and hygienic practices every day will make you feel good mentally and physically.

• Hygiene is two-thirds of health - so good hygiene will help you stay strong and healthy!

9.1.2: Safety: Tips to Design a Safe Workplace

Every employer is obligated to ensure that his workplace follows the highest possible safety protocol. When setting up a business, owners must make it a point to:

- Use ergonomically designed furniture and equipment to avoid stooping and twisting
- Provide mechanical aids to avoid lifting or carrying heavy objects
- Have protective equipment on hand for hazardous jobs
- Designate emergency exits and ensure they are easily accessible
- Set down health codes and ensure they are implemented
- Follow the practice of regular safety inspections in and around the workplace
- Ensure regular building inspections are conducted
- Get expert advice on workplace safety and follow it

Non-Negotiable Employee Safety Habits

Every employer is obligated to ensure that his workplace follows the highest possible safety protocol. When setting up a business, owners must make it a point to:

- Immediately report unsafe conditions to a supervisor
- Recognize and report safety hazards that could lead to slips, trips and falls
- Report all injuries and accidents to a supervisor
- Wear the correct protective equipment when required
- Learn how to correctly use equipment provided for safety purposes
- Be aware of and avoid actions that could endanger other people
- Take rest breaks during the day and some time off from work during the week

Tips

- Be aware of what emergency number to call at the time of a workplace emergency
- Practice evacuation drills regularly to avoid chaotic evacuations

9.1.3 Self Analysis - Attitude, Achievement Motivation: What is Self-Analysis
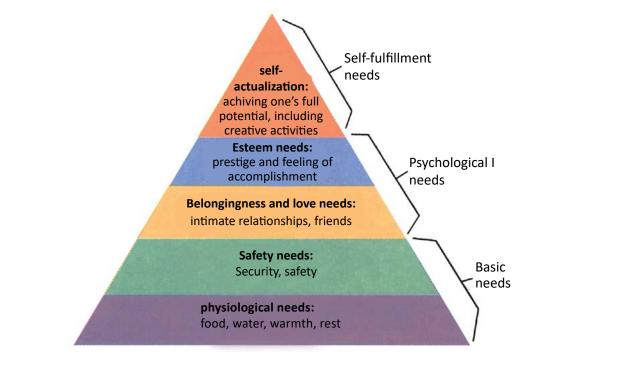
To truly achieve your full potential, you need to take a deep look inside yourself and find out what kind of person you really are. This attempt to understand your personality is known as self-analysis. Assessing yourself in this manner will help you grow, and will also help you to identify areas within yourself that need to be further developed, changed or eliminated. You can better understand yourself by taking a deep look at what motivates you, what your attitude is like, and what your strengths and weaknesses are.

What is Motivation?

Very simply put, motivation is your reason for acting or behaving in a certain manner. It is important to understand that not everyone is motivated by the same desires - people are motivated by many, many different things. We can understand this better by looking at Maslow's Hierarchy of Needs.

Maslow's Hierarchy of Needs

Famous American psychologist Abraham Maslow wanted to understand what motivates people. He believed that people have five types of needs, ranging from very basic needs (called physiological needs) to more important needs that are required for self-growth (called selfactualization needs). Between the physiological and self-actualization needs are three other needs - safety needs, belongingness and love needs, and esteem needs. These needs are usually shown as a pyramid with five levels and are known as Maslow's Hierarchy of Needs.

As you can see from the pyramid, the lowest level depicts the most basic needs. Maslow believed that our behaviour is motivated by our basic needs, until those needs are met. Once they are fulfilled, we move to the next level and are motived by the next level of needs. Let's understand this better with an example.

Rupa comes from a very poor family. She never has enough food, water, warmth or rest. According to Maslow, until Rupa is sure that she will get these basic needs, she will not even think about the next level of needs - her safety needs. But, once Rupa is confident that her basic needs will be met, she will move to the next level, and her behaviour will then be motivated by her need for security and safety. Once these new needs are met, Rupa will once again move to the next level, and be motivated by her need for relationships and friends. Once this need is satisfied, Rupa will then focus on the fourth level of needs - her esteem needs, after which she will move up to the fifth and last level of needs - the desire to achieve her full potential.

Understanding Achievement Motivation

We now know that people are motivated by basic, psychological and self-fulfillment needs. However, certain people are also motivated by the achievement of highly challenging accomplishments. This is known as Achievement Motivation, or 'need for achievement'.

The level of motivation achievement in a person differs from individual to individual. It is important that entrepreneurs have a high level of achievement motivation - a deep desire to accomplish something important and unique. It is equally important that they hire people who are also highly motivated by challenges and success.

What Motivates You?

What are the things that really motivate you? List down five things that really motivate you. Remember to answer honestly!

I am motivated by:

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Characteristics of Entrepreneurs with Achievement Motivation

Entrepreneurs with achievement motivation can be described as follows:

- Unafraid to take risks for personal accomplishment
- Love being challenged
- Future-oriented
- Flexible and adaptive

- Value negative feedback more than positive feedback

- Very persistent when it comes to achieving goals
- Extremely courageous
- Highly creative and innovative
- Restless - constantly looking to achieve more
- Feel personally responsible for solving problems

Think about it:

- How many of these traits do you have?
- Can you think of entrepreneurs who display these traits?

How to Cultivate a Positive Attitude

The good news is attitude is a choice. So it is possible to improve, control and change our attitude, if we decide we want to! The following tips help foster a positive mindset:

- Remember that you control your attitude, not the other way around

- Devote at least 15 minutes a day towards reading, watching or listening to something positive

- Avoid negative people who only complain and stop complaining yourself

- Expand your vocabulary with positive words and delete negative phrases from your mind

- Be appreciative and focus on what's good in yourself, in your life, and in others

- Stop thinking of yourself as a victim and start being proactive

- Imagine yourself succeeding and achieving your goals

What is Attitude?

Now that we understand why motivation is so important for self-analysis, let's look at the role our attitude plays in better understanding ourselves. Attitude can be described as your tendency (positive or negative), to think and feel about someone or something. Attitude is the foundation for success in every aspect of life. Our attitude can be our best friend or our worst enemy. In other words:

"The only disability in life is a bad attitude."

When you start a business, you are sure to encounter a wide variety of emotions, from difficult times and failures to good times and successes. Your attitude is what will see you through the tough times and guide you towards success. Attitude is also infectious. It affects everyone around you, from your customers to your employees to your investors. A positive attitude helps build confidence in the workplace while a negative attitude is likely to result in the demotivation of your people.

What Are Your Strengths and Weaknesses?

Another way to analyze yourself is by honestly identifying your strengths and weaknesses. This will help you use your strengths to your best advantage and reduce your weaknesses.

Note down all your strengths and weaknesses in the two columns below. Remember to be honest with yourself!

Strengths	Weaknesses

Tips

- Achievement motivation can be learned.
- Don't be afraid to make mistakes.
- Train yourself to finish what you start.
- Dream big.

9.1.4 Honesty & Work Ethics: What is Honesty?

Honesty is the quality of being fair and truthful. It means speaking and acting in a manner that inspires trust. A person who is described as honest is seen as truthful and sincere, and as someone who isn't deceitful or devious and doesn't steal or cheat. There are two dimensions of honesty - one is honesty in communication and the other is honesty in conduct.

Honesty is an extremely important trait because it results in peace of mind and builds relationships that are based on trust. Being dishonest, on the other hand, results in anxiety and leads to relationships full of distrust and conflict.

Qualities of Honest People

Honest individuals have certain distinct characteristics. Some common qualities among honest people are:

1. They don't worry about what others think of them. They believe in being themselves - they don't bother about whether they are liked or disliked for their personalities.

2. They stand up for their beliefs. They won't think twice about giving their honest opinion, even if they are aware that their point of view lies with the minority.

3. They are think skinned. This means they are not affected by others judging them harshly for their honest opinions.

4. They forge trusting, meaningful and healthy friendships. Honest people usually surround themselves with honest friends. They have faith that their friends will be truthful and upfront with them at all times.

They are trusted by their peers. They are seen as people who can be counted on for truthful and objective feedback and advice.

*   Honesty and employees: When entrepreneurs build honest relationships with their employees, it leads to more transparency in the workplace, which results in higher work performance and better results.
*   Honesty and investors: For entrepreneurs, being honest with investors means not only sharing strengths but also candidly disclosing current and potential weaknesses, problem areas and solution strategies. Keep in mind that investors have a lot of experience with startups and are aware that all new companies have problems. Claiming that everything is perfectly fine and running smoothly is a red flag for most investors.
*   Honesty with oneself: The consequences of being dishonest with oneself can lead to dire results, especially in the case of entrepreneurs. For entrepreneurs to succeed, it is critical that they remain realistic about their situation at all times, and accurately judge every aspect of their enterprise for what it truly is.

Importance of Honesty in Entrepreneurs

One of the most important characteristics of entrepreneurs is honesty. When entrepreneurs are honest with their customers, employees and investors, it shows that they respect those that they work with. It is also important that entrepreneurs remain honest with themselves.

Let's look at how being honest would lead to great benefits for entrepreneurs.

*   Honesty and customers: When entrepreneurs are honest with their customers it leads to stronger relationships, which in turn results in business growth and a stronger customer network.

What are Work Ethics?

Being ethical in the workplace means displaying values like honesty, integrity and respect in all your decisions and communications. It means not displaying negative qualities like lying, cheating and stealing.

Workplace ethics playa big role in the profitability of a company. It is as crucial to an enterprise as high morale and teamwork. This is why most companies lay down specific workplace ethic guidelines that must compulsorily be followed by their employees. These guidelines are typically outlined in a company's employee handbook.

Elements of a Strong Work Ethic

An entrepreneur must display strong work ethics, as well as hire only those individuals who believe in and display the same level of ethical behavior in the workplace. Some elements of a strong work ethic are:

• **Professionalism:** This involves everything from how you present yourself in a corporate setting to the manner in which you treat others in the workplace.

• **Respectfulness:** This means remaining poised and diplomatic regardless of how stressful or volatile a situation is.

• **Dependability:** This means always keeping your word, whether it's arriving on time for a meeting or delivering work on time.

• **Dedication:** This means refusing to quit until the designated work is done, and completing the work at the highest possible level of excellence.

• **Determination:** This means embracing obstacles as challenges rather than letting them stop you, and pushing ahead with purpose and resilience to get the desired results.

• **Accountability:** This means taking responsibility for your actions and the consequences of your actions, and not making excuses for your mistakes.

• **Humility:** This means acknowledging everyone's efforts and had work, and sharing the credit for accomplishments.

How to Foster a Good Work Ethic

As an entrepreneur, it is important that you clearly define the kind of behaviour that you expect from each and every team member in the workplace. You should make it clear that you expect employees to display positive work ethics like:

• **Honesty:** All work assigned to a person should be done with complete honesty, without any deceit or lies.

• **Good attitude:** All team members should be optimistic, energetic, and positive.

• **Reliability:** Employees should show up where they are supposed to be, when they are supposed to be there.

• **Good work habits:** Employees should always be well groomed, never use inappropriate language, conduct themselves professionally at all times, etc.

• **Initiative:** Doing the bare minimum is not enough. Every team member needs to be proactive and show initiative.

• **Trustworthiness:** Trust is non-negotiable. If an employee cannot be trusted, it's time to let that employee go.

- **Respect:** Employees need to respect the company, the law, their work, their colleagues and themselves.

- **Integrity:** Each and every team member should be completely ethical and must display above board behaviour at all times.

- **Efficiency:** Efficient employees help a company grow while inefficient employees result in a waste of time and resources.

Tips

- Don't get angry when someone tells you the truth and you don't like what you hear.

- Always be willing to accept responsibility for your mistakes.

9.1.5 Creativity & Innovation: What is Creativity

Creativity means thinking outside the box. It means viewing things in new ways or from different perspectives, and then converting these ideas into reality. Creativity involves two parts: thinking and producing. Simply having an idea makes you imaginative, not creative. However, having an idea and acting on it makes you creative.

Characteristics of Highly Creative People

Some characteristics of creative people are:

- They are imaginative and playful
- They see issues from different angles
- They notice small details
- They have very little tolerance for boredom
- They detest rules and routine
- They love to daydream
- They are very curious

What is Innovation?

There are many different definitions of innovation. In simple terms, innovation means turning an idea into a solution that adds value. It can also mean adding value by implementing a new product, service or process, or significantly improving on an existing product, service or process.

Characteristics of Highly Innovative People

Some characteristics of highly innovative people are:

- They embrace doing things differently
- They don't believe in taking shortcuts
- They are not afraid to be unconventional
- They are highly proactive and persistent
- They are organized, cautious and risk-averse

Tips

- Take regular breaks from your creative work to recharge yourself and gain fresh perspective.
- Build prototypes frequently, test them out, get feedback, and make the required changes.

9.1.6 Time Management: What is Time Management?

Time management is the process organizing your time, and deciding how to allocate your time between different activities. Good time management is the difference between working smart (getting more done in less time) and working hard (working for more time to get more done).

Effective time management leads to an efficient work output, even when you are faced with tight deadlines and high pressure situations. On the other hand, not managing your time effectively results in inefficient output and increases stress and anxiety.

Benefits of Time Management

Time management can lead to huge benefits like:

- Greater productivity
- Higher efficiency
- Better professional reputation
- Reduced stress
- Higher chances for career advancement
- Greater opportunities to achieve goals

Not managing time effectively can result in undesirable consequences like:

- Missing deadlines
- Inefficient work output
- Substandard work quality
- Poor professional reputation
- Stalled career
- Increase in stress and anxiety

Traits of Effective Time Managers

Some traits of effective time managers are:

- They begin projects early
- They break tasks into steps with specific deadlines

- They set daily objectives
- They continually review long term goals
- They modify plans if required, to achieve better results
- They think of alternate solutions if and when required
- They are flexible and open-minded
- They ask for help when required
- They inform people in advance if their help will be required
- They create backup plans
- They know how to say no

Effective Time Management Techniques

You can manage your time better by putting into practice certain time management techniques. Some helpful tips are:

- Plan out your day as well as plan for interruptions. Give yourself at least 30 minutes to igure out your time plan. In your plan, schedule some time for interruptions.
- Put up a "Do Not Disturb" sign when you absolutely have to complete a certain amount of work.
- Close your mind to all distractions. Train yourself to ignore ringing phones, don't reply to chat messages and disconnect from social media sites.

- Delegate your work. This will not only help your work get done faster, but will also show you the unique skills and abilities of those around you.

- Stop procrastinating. Remind yourself that procrastination typically arises due to the fear of failure or the belief that you cannot do things as perfectly as you wish to do them.

- Prioritize. List each task to be completed in order of its urgency or importance level. Then focus on completing each task, one by one.

- Maintain a log of your work activities. Analyze the log to help you understand how efficient you are, and how much time is wasted every day.

- Create time management goals to reduce time wastage.

Tips

Always complete the most important tasks first.
- Get at least 7 - 8 hours of sleep every day.

- Start your day early.

- Don't waste too much time on small, unimportant details.

- Set a time limit for every task that you will undertake.

- Give yourself some time to unwind between tasks.

9.1.7 Anger Management: What is Anger Management

Anger management is the process of:

1. Learning to recognize the signs that you, or someone else, is becoming angry

2. Taking the best course of action to calm down the situation in a positive way

Anger management does not mean suppressing anger.

Importance of Anger Management

Anger is a perfectly normal human emotion. In fact, when managed the right way, anger can be considered a healthy emotion. However, if it is not kept in check, anger can make us act inappropriately and can lead to us saying or doing things that we will likely later regret.

Extreme anger can:

• Hurt you physically: It leads to heart disease, diabetes, a weakened immune system, insomnia, and high blood pressure.

• Hurt you mentally: It can cloud your thinking and lead to stress, depression and mental health issues.

• Hurt your career: It can result in alienating your colleagues, bosses, clients and lead to the loss of respect.

• Hurt your relationships: It makes it hard for your family and friends to trust you, be honest with you and feel comfortable around you.

This is why anger management, or managing anger appropriately, is so important.

Anger Management Strategies

Here are some strategies that can help you control your anger:

Strategy 1: Relaxation

Something as simple as breathing deeply and looking at relaxing images works wonders in

calming down angry feelings. Try this simple breathing exercise:

1. Take a deep breath from your diaphragm (don't breathe from your chest)

2. Visualize your breath coming up from your stomach

3. Keep repeating a calming word like 'relax' or 'take it easy' (remember to keep breathing deeply while repeating the word)

4. Picture a relaxing moment (this can be from your memory or your imagination)

Follow this relaxation technique daily, especially when you realize that you're starting to feel angry.

Strategy 2: Cognitive Restructuring

Cognitive restructuring means changing the manner in which you think. Anger can make you curse, swear, exaggerate and act very dramatically. When this happens, force yourself to replace your angry thoughts with more logical ones. For instance, instead of thinking 'Everything is ruined' change your mindset and tell yourself 'It's not the end of the world and getting angry won't solve this'.

Strategy 3: Problem Solving

Getting angry about a problem that you cannot control is a perfectly natural response. Sometimes, try as you may, there may not be a solution to the difficulty you are faced with. In such cases, stop focusing on solving the problem, and instead focus on handling and facing the problem. Remind yourself that you will do your best to deal with the situation, but that you will not blame yourself if you don't get the solution you desire.

Strategy 4: Better Communication

When you're angry, it is very easy to jump to inaccurate conclusions. In this case, you need to force yourself to stop reacting, and think carefully about what you want to say, before saying it. Avoid saying the first thing that enters your head. Force yourself to listen carefully to what the other person is saying. Then think about the conversation before responding.

Strategy 5: Changing Your Environment

If you find that your environment is the cause of your anger, try and give yourself a break from your surroundings. Make an active decision to schedule some personal time for yourself, especially on days that are very hectic and stressful. Having even a brief amount of quiet or alone time is sure to help calm you down.

Tips for Anger Management

The following tips will help you keep your anger in check:

- Take some time to collect your thoughts before you speak out in anger.
- Express the reason for your anger in an assertive, but non-confrontational manner once you have calmed down.
- Do some form of physical exercise like running or walking briskly when you feel yourself getting angry.
- Make short breaks part of your daily routine, especially during days that are stressful.
- Focus on how to solve a problem that's making you angry, rather than focusing on the fact that the problem is making you angry.

Tips

- Try to forgive those who anger you, rather than hold a grudge against them.
- Avoid using sarcasm and hurling insults. Instead, try and explain the reason for your frustration in a polite and mature manner.

9.1.8 Stress Management: What is Stress

We say we are 'stressed' when we feel overloaded and unsure of our ability to deal with the pressures placed on us. Anything that challenges or threatens our well-being can be defined as a stress. It is important to note that stress can be good and bad. While good stress keeps us going, negative stress undermines our mental and physical health. This is why it is so important to manage negative stress effectively.

Causes of Stress

Stress can be caused by internal and external factors.

Internal causes of stress

- Constant worry
- Rigid thinking
- Unrealistic expectations

- Pessimism
- Negative self-talk
- All in or all out attitude

External causes of stress

- Major life changes
- Difficulties with relationships
- Having too much to do

- Difficulties at work or in school
- Financial difficulties
- Worrying about one's children and/or family

Symptoms of Stress

Stress can manifest itself in numerous ways. Take a look at the cognitive, emotional, physical and behavioral symptoms of stress.

Cognitive Symptoms	Emotional Symptoms
• Memory problems	• Depression
• Concentration issues	• Agitation
• Lack of judgement	• Irritability
• Pessimism	• Loneliness
• Anxiety	• Anxiety
• Constant worrying	• Anger

Physical Symptoms	Behavioral Symptoms
• Aches and pain	• Increase or decrease in appetite
• Diarrhea or constipation	• Over sleeping or not sleeping enough
• Nausea	• Withdrawing socially
• Dizziness	• Ignoring responsibilities
• Chestpain and/or rapid heartbeat	• Consumption of alcohol or cigarettes
• Frequent cold or flu like feelings	• Nervous habits like nail biting, pacing etc.

Tips to Manage Stress

The following tips can help you manage your stress better:

- Note down the different ways in which you can handle the various sources of your stress.
- Remember that you cannot control everything, but you can control how you respond.
- Discuss your feelings, opinions and beliefs rather than reacting angrily, defensively or passively.
- Practice relaxation techniques like meditation, yoga or tai chi when you start feeling stressed.
- Devote a part of your day towards exercise.
- Eat healthy foods like fruits and vegetables. Avoid unhealthy foods especially those containing large amounts of sugar.
- Plan your day so that you can manage your time better, with less stress.
- Say no to people and things when required.
- Schedule time to pursue your hobbies and interests.
- Ensure you get at least 7-8 hours of sleep.
- Reduce your caffeine intake.
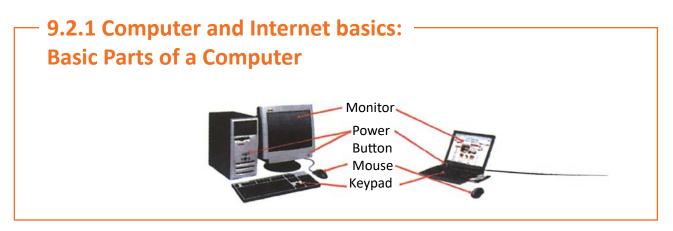- Increase the time spent with family and friends.

Tips

- Force yourself to smile even if you feel stressed. Smiling makes us feel relaxed and happy.
- Stop yourself from feeling and thinking like a victim. Change your attitude and focus on being proactive.

UNIT 9.2. Digital Literacy: A Recap

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Identify the basic parts of a computer

2. Identify the basic parts of a keyboard

3. Recall basic computer terminology

4. Recall basic computer terminology

5. Recall the functions of basic computer keys

6. Discuss the main applications of MS Office

7. Discuss the benefits of Microsoft Outlook

8. Discuss the different types of e-commerce

9. List the benefits of e-commerce for retailers and customers

10. Discuss how the Digital India campaign will help boost e-commerce in India

11. Describe Explain how you will sell a product or service on an e-commerce platform

9.2.1 Computer and Internet basics: Basic Parts of a Computer

Basic Parts of a Keyboard

Basic Parts of a Computer

- **Central Processing Unit (CPU): T**he brain of the computer. It interprets and carries out program instructions.

- **Hard Drive:** A device that stores large amounts of data.

- **Monitor:** The device that contains the computer screen where the information is visually displayed.

- **Desktop:** The first screen displayed after the operating system loads.

- **Background:** The image that fills the background of the desktop.

Basic Parts of a Computer

- **Mouse:** A hand-held device used to point to items on the monitor.

- Speakers: Devices that enable you to hear sound from the computer.

- Printer: A device that converts output from a computer into printed paper documents.

- Icon: A small picture or image that visually represents something on your computer.

- Cursor: An arrow which indicates where you are positioned on the screen.

- Program Menu: A list of programs on your computer that can be accessed from the Start menu.

- Taskbar: The horizontal bar at the bottom of the computer screen that lists applications that are currently in use.

- Recycle Bin: A temporary storage for deleted files.

Basic Internet Terms

The Internet: A vast, international collection of computer networks that transfers information.

- **The World Wide Web:** A system that lets you access information on the Internet.

- **Website:** A location on the World Wide Web (and Internet) that contains information about a specific topic.

- **Homepage:** Provides information about a website and directs you to other pages on that website.

- Link/Hyperlink: A highlighted or underlined icon, graphic, or text that takes you to another file or object.

- Web Address/URL: The address for a website.

- Address Box: A box in the browser window where you can type in a web address.

Basic Computer Keys

Arrow Keys: Press these keys to move your cursor.

- **Space bar:** Adds a space.

- **Enter/Return:** Moves your cursor to a new line.

- **Shift:** Press this key if you want to type a capital letter or the upper symbol of a key.

- **Caps Lock:** Press this key if you want all the letters you type to be capital letters. Press it again to revert back to typing lowercase letters.

- **Backspace:** Deletes everything to the left of your cursor.

Tips

- When visiting a .com address, there no need to type http:// or even www. Just type the name of the website and then press Ctrl + Enter. (Example: Type 'apple' and press Ctrl + Enter to go to www.apple.com)

- Press the Ctrl key and press the + or - to increase and decrease the size of text.

- Press FS or Ctrl + R to refresh or reload a web page.

9.2.2 MS Office and Email: About MS Office

MS Office or Microsoft Office is a suite of computer programs developed by Microsoft. Although meant for all users, it offers different versions that cater specifically to students, home users and business users. All the programs are compatible with both, Windows and Macintosh.

Most Popular Office Products

Some of the most popular and universally used MS Office applications are:

- **Microsoft Word:** Allows users to type text and add images to a document.
- **Microsoft Excel:** Allows users to enter data into a spreadsheet and create calculations and graphs.
- **Microsoft PowerPoint:** Allows users to add text, pictures and media and create slideshows and presentations.
- **Microsoft Outlook:** Allows users to send and receive email.
- **Microsoft OneNote:** Allows users to make drawings and notes with the feel of a pen on paper.
- **Microsoft Access:** Allows users to store data over many tables.

Why Choose Microsoft Outlook

A popular email management choice especially in the workplace, Microsoft Outlook also includes an address book, notebook, web browser and calendar. Some major benefits of this program are:

- **Integrated search function:** You can use keywords to search for data across all Outlook programs.
- **Enhanced security:** Your email is safe from hackers, junk mail and phishing website email.
- **Email syncing:** Sync your mail with your calendar, contact list, notes in OneNote and ... your phone!
- **Offline access to email:** No Internet? No problem! Write emails offline and send them when you're connected again.

Tips

- Press Ctrl+R as a shortcut method to reply to email.
- Set your desktop notifications only for very important emails.
- Flag messages quickly by selecting messages and hitting the Insert key.
- Save frequently sent emails as a template to reuse again and again.
- Conveniently save important emails as files.

9.2.3 E-Commerce: What is E-Commerce

E-commerce is the buying or selling of goods and services, or the transmitting of money or data, electronically on the internet. E-Commerce is the short form for "electronic commerce.

Examples of E-Commerce

Some examples of e-commerce are:

- Online shopping
- Online auctions
- Online ticketing

- Electronic payments
- Internet banking

Types of E-Commerce

E-commerce can be classified based on the types of participants in the transaction. The main types of e-commerce are:

- **Business to Business (B2B):** Both the transacting parties are businesses.
- **Business to Consumer (B2C):** Businesses sell electronically to end-consumers.
- **Consumer to Consumer (C2C):** Consumers come together to buy, sell or trade items to other consumers.
- **Consumer-to-Business (C2B):** Consumers make products or services available for purchase to companies looking for exactly those services or products.
- **Business-to-Administration (B2A):** Online transactions conducted between companies and public administration.
- **Consumer-to-Administration (C2A):** Online transactions conducted between individuals and public administration.

Benefits of E-Commerce

The e-commerce business provides some benefits for retailers and customers.

Benefits for retailers:

- Establishes an online presence
- Reduces operational costs by removing overhead costs
- Increases brand awareness through the use of good keywords
- Increases sales by removing geographical and time constraints

Benefits for customers:

- Offers a wider range of choice than any physical store
- Enables goods and services to be purchased from remote locations
- Enables consumers to perform price comparisons

Digital India Campaign

Prime Minister Narendra Modi launched the Digital India campaign in 2015, with the objective of offering every citizen of India access to digital services, knowledge and information. The campaign aims to improve the country's online infrastructure and increase internet connectivity, thus boosting the e-commerce industry.

Currently, the majority of online transactions come from tier 2 and tier 3 cities. Once the Digital India campaign is in place, the government will deliver services through mobile connectivity, which will help deliver internet to remote corners of the country. This will help the e-commerc market to enter India's tier 4 towns and rural areas.

E-Commerce Activity

Choose a product or service that you want to sell online. Write a brief note explaining how you will use existing e-commerce platforms, or create a new e-commerce platform, to sell your product or service.

Tips

- Before launching your e-commerce platform, test everything.
- Pay close and personal attention to your social media.

UNIT 9.3: Money Matters

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Discuss the importance of saving money
2. Discuss the benefits of saving money
3. Discuss the main types of bank accounts
4. Describe the process of opening a bank account
5. Differentiate between fixed and variable costs
6. Describe the main types of investment options
7. Describe the different types of insurance products
8. Describe the different types of taxes
9. Discuss the uses of online banking
10. Discuss the main types of electronic funds transfers

9.3.1 Personal Finance - Why to Save: Importance of Saving

We all know that the future is unpredictable. You never know what will happen tomorrow, next week or next year. That's why saving money steadily through the years is so important. Saving money will help improve your financial situation over time. But more importantly, knowing that you have money stashed away for an emergency will give you peace of mind. Saving money also opens the door to many more options and possibilities.

Benefits of Saving

Inculcating the habit of saving leads to a vast number of benefits. Saving helps you:

*   **Become financially independent:** When you have enough money saved up to feel secure you can start making your choices, from taking a vacation whenever you want, to switching careers or starting your own business.

*   **Invest in yourself through education:** Through saving, you can earn enough to pay up for courses that will add to your professional experience and ultimately result in higher paying jobs.

*   **Get out of debt:** Once you have saved enough as a reserve fund, you can use your savings to payoff debts like loans or bills that have accumulated over time.

*   **Be prepared for surprise expenses:** Having money saved enables you to pay for unforeseen expenses like sudden car or house repairs, without feeling financially stressed.

*   **Pay for emergencies:** Saving helps you deal with emergencies like sudden health issues or emergency trips without feeling financially burdened.

- **Afford large purchases and achieve major goals:** Saving diligently makes it possible to place down payments towards major purchases and goals, like buying a home or a car.

- **Retire:** The money you have saved over the years will keep you comfortable when you no longer have the income you would get from your job.

Tips

- Break your spending habit. Try not spending on one expensive item per week, and put the money that you would have spent into your savings.

- Decide that you will not buy anything on certain days or weeks and stick to your word.

9.3.2 Types of Bank Accounts, Opening a Bank Account: Types of Bank Accounts

In India, banks offer four main types of bank accounts. These are:

• Current Accounts
• Savings Accounts
• Recurring Deposit Accounts
• Fixed Deposit Accounts

Current Accounts

Current accounts offer the most liquid deposits and thus, are best suited for businessmen and companies. As these accounts are not meant for investments and savings, there is no imposed limit on the number or amount of transactions that can be made on any given day. Current account holders are not paid any interest on the amounts held in their accounts. They are charged for certain services offered on such accounts.

Savings Accounts

Savings accounts are meant to promote savings, and are therefore the number one choice for salaried individuals, pensioners and students. While there is no restriction on the number and amount of deposits made, there are usually restrictions on the number and amount of withdrawals. Savings account holders are paid interest on their savings.

Recurring Deposit Accounts

Recurring Deposit accounts, also called RD accounts, arethe accounts of choice forthose who want to save an amount every month, but are unable to invest a large sum at one time. Such account holders deposit a small, fixed amount every month for a pre-determined period (minimum 6 months). Defaulting on a monthly payment results in the account holder being charged a penalty amount. The total amount is repaid with interest at the end of the specified period.

Fixed Deposit Accounts

Fixed Deposit accounts, also called FD accounts, are ideal for those who wish to deposit their savings for a long term in return for a high rate of interest. The rate of interest offered depends on the amount deposited and the time period, and also differs from bank to bank. In the case of an FD, a certain amount of money is deposited by the account holder for a fixed period of time. The money can be withdrawn when the period expires. If necessary, the depositor can break the fixed deposit prematurely. However, this usually attracts a penalty amount which also differs from bank to bank.

Opening a Bank Account

Opening a bank account is quite a simple process. Take a look at the steps to open an account of your own:

Step 1: Fill in the Account Opening Form

This form requires you to provide the following information:
• Personal details (name, address, phone number, date of birth, gender, occupation, address)

• Method of receiving your account statement (hard copy/email)

• Details of your initial deposit (cash/cheque)

• Manner of operating your account (online/mobile banking/traditional via cheque, slip books)

Ensure that you sign wherever required on the form.

Step 2: Affix your Photograph

Stick a recent photograph of yourself in the allotted space on the form.

Step 3: Provide your Know Your Customer (KYC) Details
KYC is a process that helps banks verify the identity and address of their customers. To open an account, every individual needs to submit certain approved documents with respect to photo identity (ID) and address proof. Some Officially Valid Documents (OVDs) are:

• Passport

• Driving License

• Voters' Identity Card

• PAN Card

• UIDAI (Aadhaar) Card

Step 4: Submit All your Documents

Submit the completed Account Opening Form and KYC documents. Then wait until the forms are processed and your account has been opened!

Tips

• Select the right type of account.

• Fill in complete nomination details.

• Ask about fees.

• Understand the rules.

• Check for online banking - it's convenient!

• Keep an eye on your bank balance.

9.3.3 Costs: Fixed vs Variable: What are Fixed and Variable Costs

Fixed costs and variable costs together make up a company's total cost. These are the two types of costs that companies have to bear when producing goods and services.

A fixed cost does not change with the volume of goods or services a company produces. It always remains the same.

A variable cost, on the other hand, increases and decreases depending on the volume of goods and services produced. In other words, it varies with the amount produced.

Differences Between Fixed and Variable Costs

Let's take a look at some of the main differences between fixed and variable costs:

Criteria	Fixed Costs	Variable Costs
Meaning	A cost that stays the same, regardless of the output produced.	A cost that changes when the output changes.
Nature	Time related.	Volume related.
Incurred	Incurred produced.	Incurred only when units are produced.
Unit cost	Inversely proportional to the number of units produced.	Remains the same, per unit.
Examples	Depreciation,rent,salary,insurance, tax etc.	Material consumed, wages, commission on sales, packing expenses, etc.

Tips

- When trying to determine whether a cost is fixed or variable, simply ask the following question: Will the particular cost change if the company stopped its production activities? If the answer is no, then it is a fixed cost. If the answer is yes, then it is probably a variable cost.

9.3.4 Investment, Insurance and Taxes: Investment

Investment means that money is spent today with the aim of reaping financial gains at a future time. The main types of investment options are as follows:

- **Bonds:** Bonds are instruments used by public and private companies to raise large sums of money - too large to be borrowed from a bank. These bonds are then issued in the public market and are bought by lenders.

- **Stocks:** Stocks or equity are shares that are issued by companies and are bought by the general public.

- **Small Savings Schemes:** Small Savings Schemes are tools meant to save money in small amounts. Some popular schemes are the Employees Provident Fund, Sukanya Samriddhi Scheme and National Pension Scheme.

- **Mutual Funds:** Mutual Funds are professionally managed financial instruments that invest money in different securities on behalf of investors.

- **Fixed Deposits:** A fixed amount of money is kept aside with a financial institution for a fixed amount of time in return for interest on the money.

- **Real Estate:** Loans are taken from banks to purchase real estate, which is then leased or sold with the aim of making a profit on the appreciated property price.

- **Hedge Funds:** Hedge funds invest in both financial derivatives and/or publicly traded securities.

- **Private Equity:** Private Equity is trading in the shares of an operating company that is not publicly listed and whose shares are not available on the stock market.

- **Venture Capital:** Venture Capital involves investing substantial capital in a budding company in return for stocks in that company.

Insurance

There are two types of insurance - Life Insurance and Non-Life or General Insurance.

Life Insurance

Life Insurance deals with all insurance covering human life.

Life Insurance Products

The main life insurance products are:

- **Term Insurance:** This is the simplest and cheapest form of insurance. It offers financial protection for a specified tenure, say 15 to 20 years. In the case of your death, your family is paid the sum assured. In the case of your surviving the term, the insurer pays nothing.

- **Endowment Policy:** This offers the dual benefit of insurance and investment. Part of the premium is allocated towards the sum assured, while the remaining premium gets invested in equity and debt. It pays a lump sum amount after the specified duration or on the death of the policyholder, whichever is earlier.

- **Unit-Linked Insurance Plan (UlIP):** Here part of the premium is spent on the life cover, while the remaining amount is invested in equity and debt. It helps develop a regular saving habit.

- **Money Back Life Insurance:** While the policyholder is alive, periodic payments of the partial survival benefits are made during the policy tenure. On the death of the insured, the insurance company pays the full sum assured along with survival benefits.

- **Whole Life Insurance:** It offers the dual benefit of insurance and investment. It offers insurance cover for the whole life of the person or up to 100 years whichever is earlier.

General Insurance

General Insurance deals with all insurance covering assets like animals, agricultural crops, goods, factories, cars and so on.

General Insurance Products

The main general insurance products are:

- **Motor Insurance:** This can be divided into Four Wheeler Insurance and Two Wheeler Insurance.

- **Health Insurance:** The main types of health insurance are individual health insurance, family floater health insurance, comprehensive health insurance and critical illness insurance.

- **Travel Insurance:** This can be categorised into Individual Travel Policy, Family Travel Policy, Student Travel Insurance and Senior Citizen Health Insurance.

- **Home Insurance:** This protects the house and its contents from risk.

- Marine Insurance: This insurance covers goods, freight, cargo etc. against loss or damage during transit by rail, road, sea and/or air.

Taxes

There are two types of taxes - Direct Taxes and Indirect Taxes.

Direct Tax

Direct taxes are levied directly on an entity or a person and are non-transferrable.

Some examples of Direct Taxes are:

- **Income Tax:** This tax is levied on your earning in a financial year. It is applicable to both, individuals and companies.

- **Capital Gains Tax:** This tax is payable whenever you receive a sizable amount of money. It is usually of two types - short term capital gains from investments held for less than 36 months and long term capital gains from investments held for longer than 36 months.

- **Securities Transaction Tax:** This tax is added to the price of a share. It is levied every time you buy or sell shares.

- **Perquisite Tax:** This tax is levied is on perks that have been acquired by a company or used by an employee.

- **Corporate Tax:** Corporate tax is paid by companies from the revenue they earn.

Indirect Tax

Indirect taxes are levied on goods or services.

Some examples of Indirect Taxes are:

- **Sales Tax:** Sales Tax is levied on the sale of a product.

Service Tax: Service Tax is added to services provided in India.

- **Value Added Tax:** Value Added Tax is levied at the discretion of the state government. The tax is levied on goods sold in the state. The tax amount is decided by the state.

- **Customs Duty & Octroi:** Customs Duty is a charge that is applied on purchases that are imported from another country. Octroi is levied on goods that cross state borders within India.

- **Excise Duty:** Excise Duty is levied on all goods manufactured or produced in India.

Tips

- Think about how quickly you need your money back and pick an investment option accordingly.

- Ensure that you are buying the right type of insurance policy for yourself.

- Remember, not paying taxes can result in penalties ranging from fines to imprisonment.

9.3.5 Online Banking, NEFT, RTGS etc.: What is Online Banking

Internet or online banking allows account holders to access their account from a laptop at any location. In this way, instructions can be issued. To access an account, account holders simply need to use their unique customer ID number and password.

Internet banking can be used to:

• Find out an account balance

• Transfer amounts from one account to another

• Arrange for the issuance of cheques

• Instruct payments to be made

• Request for a cheque book

• Request for a statement of accounts

• Make a fixed deposit

Electronic Funds Transfers

Electronic funds transfer is a convenient way of transferring money from the comfort of one's own home, using integrated banking tools like internet and mobile banking.

Transferring funds via an electronic gateway is extremely convenient. With the help of online banking, you can choose to:

• Transfer funds into your own accounts of the same bank.

• Transfer funds into different accounts of the same bank.

• Transfer funds into accounts in different banks, using NEFT.

• Transfer funds into other bank accounts using RTGS.

• Transfer funds into various accounts using IMPS.

NEFT

NEFT stands for National Electronic Funds Transfer. This money transfer system allows you to electronically transfer funds from your respective bank accounts to any other account, either in the same bank or belonging to any other bank. NEFT can be used by individuals, firms and corporate organizations to transfer funds between accounts.

In order to transfer funds via NEFT, two things are required:

• A transferring bank

• A destination bank

Before you can transfer funds through NEFT, you will need to register the beneficiary who will be receiving the funds. In order to complete this registration, you will require the following information:

• Recipient's name
• Recipient's bank's name

• Recipient's account number
• Recipient's bank's IFSC code

RTGS

RTGS stands for Real Time Gross Settlement. This is a real time funds transfer system which enables you to transfer funds from one bank to another, in real time or on a gross basis. The transferred amount is immediately deducted from the account of one bank, and instantly credited to the other bank's account. The RTGS payment gateway is maintained by the Reserve Bank of India. The transactions between banks are made electronically.

RTGS can be used by individuals, companies and firms to transfer large sums of money. Before remitting funds through RTGS, you will need to add the beneficiary and his bank account details via your online banking account. In order to complete this registration, you will require the following information:

• Name of the beneficiary	• Beneficiary's account number
• Beneficiary's bank address	• Beneficiary's bank's IFSC code

IMPS

IMPS stands for Immediate Payment Service. This is a real-time, inter-bank, electronic funds transfer system used to transfer money instantly within banks across India. IMPS enables users to make instant electronic transfer payments using mobile phones through both, Mobile Banking and SMS. It can also be used through ATMs and online banking. IMPS is available 24 hours a day and 7 days a week. The system features a secure transfer gateway and immediately confirms orders that have been fulfilled.

To transfer money through IMPS, the you need to:

• Register for IMPS with your bank

• Receive a Mobile Money Identifier (MMID) from the bank

• Receive a MPIN from the bank

Once you have both these, you can login or make a request through SMS to transfer a particular amount to a beneficiary.

For the beneficiary to receive the transferred money, he must:

1. Link his mobile number with his respective account

2. Receive the MMID from the bank In order to initiate a money transfer through IMPS, you will need to enter the following information:

1. The beneficiary's mobile number	2. The beneficiary's MMID
3. The transfer amount	4. Your MPIN

As soon as money has been deducted from your account and credited into the beneficiary's account, you will be sent a confirmation SMS with a transaction reference number, for future reference.

Differences Between NEFT, RTGS & IMPS

Criteria	NEFT	RTGS	IMPS
Settlement	Done in batches	Real-time	Real-time
Full form	National Electronic Fund Transfer	Real Time Gross Settlement	Immediate Payment Service
Timings on Monday-Friday	8:00 am-6:30 pm	9:00 am-4:30 pm	24x7
Timings on Saturday	8:00 am-1:00 pm	9:00 am-1:30 pm	24x7
Minimum amount of money transfer limit	₹1	₹2 lacs	₹1
Maximum amount of money transfer limit	₹10 lacs	₹10 lacs per day	₹2 lacs
Maximum charges as per RBI	Upto 10,000-₹2.5 above 10,000-1 lac -₹5 above1-2 lacs-₹15 above2-5 lacs-₹25 above5-10 lacs-₹25	above2-5lacs-₹25 above5-10lacs-₹50	Upto10,000-₹5 above 10,000-1 lac -₹5 above 1-2 lacs-₹15

Tips

- Never click on any links in any e-mail message to access your online banking website.
- You will never be asked for your credit or debit card details while using online banking.
- Change your online banking password regularly.

UNIT 9.4. Preparing for Employment & Self Employment

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Discuss the steps to prepare for an interview
2. Discuss the steps to create an effective Resume
3. Discuss the most frequently asked interview questions
4. Discuss how to answer the most frequently asked interview questions
5. Discuss basic workplace terminology

9.4.1 Interview Preparation: How to Prepare for an Interview

The success of your getting the job that you want depends largely on how well your interview for that job goes. Therefore, before you go in for your interview, it is important that you prepare for it with a fair amount of research and planning. Take a look at the steps to follow in order to be well prepared for an interview:

1. **Research the organization that you are having the interview with.**

   • Studying the company beforehand will help you be more prepared at the time of the interview. Your knowledge of the organization will help you answer questions at the time of the interview, and will leave you looking and feeling more confident. This is sure to make you stand out from other, not as well informed, candidates.

   • Look for background information on the company. Ty and find an overview of the company and its industry profile.

   • Visit the company website to get a good idea of what the company does. A company website offers a wealth of important information. Read and understand the company's mission statement. Pay attention to the company's products/services and client list. Read through any press releases to get an idea of the company's projected growth and stability.

   • Note down any questions that you have after your research has been completed.

2. **Think about whether your skills and qualifications match the job requirements.**

   • Carefully read through and analyze the job description.

   • Make a note of the knowledge, skills and abilities required to fulfill the job requirements.

   • Take a look at the organization hierarchy. Figure out where the position you are applying for fits into this hierarchy.

3. **Go through the most typical interview questions asked, and prepare your responses.**

   • Remember, in most interviews a mix of resume-based, behavioral and case study questions are asked.

   • Think about the kind of answers you would like to provide to typical questions asked in these three areas.

   • Practice these answers until you can express them confidently and clearly.

4. **Plan your attire for the interview.**

   • It is always safest to opt for formal business attire, unless expressly informed to dress in business casual (in which case you should use your best judgement).

   • Ensure that your clothes are clean and well-ironed. Pick neutral colours - nothing too bright or flashy.

   • The shoes you wear should match your clothes, and should be clean and suitable for an interview.

   • Remember, your aim is to leave everyone you meet with the impression that you are a professional and highly efficient person.

5. **Ensure that you have packed everything that you may require during the interview.**

   • Carry a few copies of your resume. Use a good quality paper for your resume print outs.

   • Always take along a notepad and a pen.

   • Take along any information you may need to refer to, in order to fill out an application form.

   • Carry a few samples of your work, if relevant.

6. **Remember the importance of non-verbal communication.**

   • Practice projecting confidence. Remind yourself to smile and make eye contact. Practice giving a firm handshake.

   • Keep in mind the importance of posture. Practice sitting up straight. Train yourself to stop nervous gestures like fidgeting and foot-tapping.

   • Practice keeping your reactions in check. Remember, your facial expressions provide a good insight into your true feelings. Practice projecting a positive image.

7. **Make a list of questions to end the interview with.**

   • Most interviews will end with the interviewer(s} asking if you have any questions. This is your chance to show that you have done your research and are interested in learning more about the company.

   • If the interviewer does not ask you this question, you can inform him/her that you have some queries that you would like to discuss. This is the time for you to refer to the notes you made while studying the company.

   • Some good questions to ask at this point are:

     o   What do you consider the most important criteria for success in this job?

     o   How will my performance be evaluated?

     o   What are the opportunities for advancement?

     o   What are the next steps in the hiring process?

   • Remember, never ask for information that is easily available on the company website.

Tips

• Ask insightful and probing questions.

• When communicating, use effective forms of body language like smiling, making eye contact, and actively listening and nodding. Don't slouch, play with nearby items, fidget, chew gum, or mumble.

9.4.2 Preparing an Effective Resume: How to Create an Effective Resume

A resume is a formal document that lists a candidate's work experience, education and skills. A good resume gives a potential employer enough information to believe the applicant is worth interviewing. That's why it is so important to create a resume that is effective. Take a look at the steps to create an effective resume:

Step 1: Write the Address Section

The Address section occupies the top of your resume. It includes information like your name, address, phone number and e-mail address. Insert a bold line under the section to separate it from rest of your resume.

Example:

Jasmine Watts

Breach Candy, Mumbai -India

Contact No: +91 2223678270

Email: jasmine.watts@gmail.com

_____

Step 2: Add the Profile Summary Section

This part of your resume should list your overall experiences, achievements, awards, certifications and strengths. You can make your summary as short as 2-3 bullet points or as long as 8-10 bullet points.

Example:

Profile Summary

- A Content Writer graduated from University of Strathclyde having 6 years of experience in writing website copy.
- Core expertise lies in content creation for e-learning courses, specifically for the K-12 segment.

Step 3: Include Your Educational Qualifications

When listing your academic records, first list your highest degree. Then add the second highest qualification under the highest one and so on. To provide a clear and accurate picture of your educational background, it is critical that include information on your position, rank, percentage or CPI for every degree or certification that you have listed.

If you have done any certifications and trainings, you can add a Trainings & Certifications section under your Educational Qualifications section.

Example:

Educational Qualifications

- Masters in International Management (2007) from Columbia University with 8.8 CPI.
- Bachelor of Management Studies (2004) from Mumbai University with 87% marks.
- 10+2 with Math, Stats (2001) from Maharashtra Board with 91% marks.
- High School (1999) from Maharashtra Board with 93% marks.

Step 4: List Your Technical Skills

When listing your technical skills, start with the skills that you are most confident about. Then add the skills that you do not have as good a command over. It is perfectly acceptable to include just one skill, if you feel that particular skill adds tremendous value to your resume. If you do not have any technical skills, you can omit this step.

Example:

Technical Skills

- Flash
- Photoshop

Step 5: Insert Your Academic Project Experience

List down all the important projects that you have worked on. Include the following information in this section:

- Project title
- Contribution
- Organization
- Description
- Platform used

Example:

Academic Projects

Project Title: Different Communication Skills

Organization: True Blue Solutions

Platform used: Articulate

Contribution: Content writing and graphic visualization

Description: Development of storyboards for corporate induction & training programs

Step 6: List Your Strengths

This is where you list all your major strengths. This section should be in the form of a bulleted list.

Example:

Strengths

- Excellent oral, written and presentation skills
- Action-oriented and result-focused
- Great time management skills

Step 7: List Your Extracurricular Activities

It is very important to show that you have diverse interests and that your life consists of more than academics. Including your extracurricular activities can give you an added edge over other candidates who have similar academic scores and project experiences. This section should be in the form of a bulleted list.

Example:

> **Extracurricular Activities**
> • Member of the Debate Club
> • Played tennis at a national level
> • Won first prize in the All India Camel Contest, 2010

Step 8: Write Your Personal Details

The last section of your resume must include the following personal information:

- Date of birth
- Nationality
- Gender & marital status
- Languages known

Example:

> **Personal Details**
>
> - **Date of birth:**   25th May, 1981
> - **Gender & marital status:** Female, Single
> - **Nationality:**   Indian
> - **Languages known:**   English, Hindi, Tamil, French

Tips

- Keep your resume file name short, simple and informational.
- Make sure the resume is neat and free from typing errors.
- Always create your resume on plain white paper.

9.4.3 Interview FAQs

Take a look at some of the most frequently asked interview questions, and some helpful tips on how to answer them.

Q1. Can you tell me a little about yourself?

Tips to answer:

- Don't provide your full employment or personal history.
- Offer 2-3 specific experiences that you feel are most valuable and relevant.
- Conclude with how those experiences have made you perfect for this specific role.

Q2. How did you hear about the position?

Tips to answer:

- Tell the interviewer how you heard about the job - whether it was through a friend (name the friend), event or article {name them} or a job portal {say which one}.
- Explain what excites you about the position and what in particular caught your eye about this role.

Q3. What do you know about the company?

Tips to answer:

- Don't recite the company's About Us page.
- Show that you understand and care about the company's goals.
- Explain why you believe in the company's mission and values.

Q4. Why do you want this job?

Tips to answer:

- Show that you are passionate about the job.
- Identify why the role is a great fit for you.
- Explain why you love the company.

Q5. Why should we hire you?

Tips to answer:

- Prove through your words that you can not only do the work, but can definitely deliver excellent results.
- Explain why you would be a great fit with the team and work culture.
- Explain why you should be chosen over any other candidate.

Q6. What are your greatest professional strengths?

Tips to answer:

- Be honest - share some of your real strengths, rather than give answers that you think sound good.
- Offer examples of specific strengths that are relevant to the position you are applying for.
- Provide examples of how you've demonstrated these strengths.

Q7. What do you consider to be your weaknesses?

Tips to answer:

- The purpose of this question is to gauge your self-awareness and honesty.
- Give an example of a trait that you struggle with, but that you're working on to improve.

Q8. What are your salary requirements?

Tips to answer:

- Do your research beforehand and find out the typical salary range for the job you are applying for.
- Figure out where you lie on the pay scale based on your experience, education, and skills.
- Be flexible. Tell the interviewer that you know your skills are valuable, but that you want the job and are willing to negotiate.

Q9. What do you like to do outside of work?

Tips to answer:

- The purpose of this question is to see if you will fit in with the company culture.
- Be honest - open up and share activities and hobbies that interest and excite you.

Q10. If you were an animal, which one would you want to be?

Tips to answer:

- The purpose of this question is to see if you are able to think on your feet.
- There's no wrong answer- but to make a great impression try to bring out your strengths or personality traits through your answer.

Q11: What do you think we could do better or differently?

Tips to answer:

- The purpose of this question is to see if you have done your research on the company, and to test whether you can think critically and come up with new ideas.
- Suggest new ideas. Show how your interests and expertise would help you execute these ideas.

Q12: Do you have any questions for us?

Tips to answer:

- Do not ask questions to which the answers can be easily found on the company website or through a quick online search.
- Ask intelligent questions that show your ability to think critically.

Tips

- Be honest and confident while answering.
- Use examples of your past experiences wherever possible to make your answers more impactful.

9.4.4 Work Readiness - Terms & Terminologies:
Basic Workplace Terminology

Every employee should be well versed in the following terms:

- **Annual leave:** Paid vacation leave given by employers to employees.
- **Background Check:** A method used by employers to verify the accuracy of the information provided by potential candidates.
- **Benefits:** A part of an employee's compensation package.
- **Breaks:** Short periods of rest taken by employees during working hours.
- **Compensation Package:** The combination of salary and benefits that an employer provides to his/her employees.
- **Compensatory Time (Comp Time):** Time off in lieu of pay.
- **Contract Employee:** An employee who works for one organization that sells said employee's services to another company, either on a project or time basis.
- **Contract of Employment:** When an employee is offered work in exchange for wages or salary, and accepts the offer made by the employer, a contract of employment exists.
- **Corporate Culture:** The beliefs and values shared by all the members of a company, and imparted from one generation of employees to another.
- **Counter Offer/Counter Proposal:** A negotiation technique used by potential candidates to increase the amount of salary offered by a company.
- **Cover Letter:** A letter that accompanies a candidate's resume. It emphasizes the important points in the candidate's resume and provides real examples that prove the candidate's ability to perform the expected job role.
- **Curriculum Vitae (CV)/Resume:** A summary of a candidate's achievements, educational background, work experience, skills and strengths.
- **Declining Letter:** A letter sent by an employee to an employer, turning down the job offer made by the employer to the employee.
- **Deductions:** Amounts subtracted from an employee's pay and listed on the employee's pay slip.
- **Discrimination:** The act of treating one person not as favourably as another person.
- **Employee:** A person who works for another person in exchange for payment.
- **Employee Training:** A workshop or in-house training that an employee is asked to attend by his or her superior, for the benefit of the employer.
- **Employment Gaps:** Periods of unemployed time between jobs.
- **Fixed-Term Contract:** A contract of employment which gets terminated on an agreed-upon date.
- **Follow-Up:** The act of contacting a potential employer after a candidate has submitted his or her resume.
- **Freelancer/Consultant/Independent Contractor:** A person who works for him or herself and pitches for temporary jobs and projects with different employers.
- **Holiday:** Paid time-off from work.
- **Hourly Rate:** The amount of salary or wages paid for 60 minutes of work.

- **Internship:** A job opportunity offered by an employer to a potential employee, called an intern, to work at the employer's company for a fixed, limited time period.
- **Interview:** A conversation between a potential employee and a representative of an employer, in order to determine if the potential employee should be hired.
- **Job Application:** A form which asks for a candidate's information like the candidate's name, address, contact details and work experience. The purpose of a candidate submitting a job application, is to show that candidate's interest in working for a particular company.
- **Job Offer:** An offer of employment made by an employer to a potential employee.
- **Job Search Agent:** A program that enables candidates to search for employment opportunities by selecting criteria listed in the program, for job vacancies.
- **Lay Off:** A layoff occurs when an employee is temporarily let go from his or her job, due to the employer not having any work for that employee.
- **Leave:** Formal permission given to an employee, by his or her employer, to take a leave of absence from work.
- **Letter of Acceptance:** A letter given by an employer to an employee, confirming the offer of employment made by the employer, as well as the conditions of the offer.
- **Letter of Agreement:** A letter that outlines the terms of employment.
- **Letter of Recommendation:** A letter written for the purpose of validating the work skills of a person.
- **Maternity Leave:** Leave taken from work by women who are pregnant, or who have just given birth.
- **Mentor:** A person who is employed at a higher level than you, who offers you advice and guides you in your career.
- **Minimum wage:** The minimum wage amount paid on an hourly basis.
- **Notice:** An announcement made by an employee or an employer, stating that the employment contract will end on a particular date.
- **Offer of Employment:** An offer made by an employer to a prospective employee that contains important information pertaining to the job being offered, like the starting date, salary, working conditions etc.
- **Open-Ended Contract:** A contract of employment that continues till the employer or employee terminates it.
- **Overqualified:** A person who is not suited for a particular job because he or she has too many years of work experience, or a level of education that is much higher than required for the job, or is currently or was previously too highly paid.
- **Part-Time Worker:** An employee who works for fewer hours than the standard number of hours normally worked.
- **Paternity Leave:** Leave granted to a man who has recently become a father.
- Recruiters/Headhunters/Executive Search Firms: Professionals who are paid by employers to search for people to fill particular positions.
- **Resigning/Resignations:** When an employee formally informs his or her employer that he or she is quitting his or her job.
- **Self-Employed:** A person who has his or her own business and does not work in the capacity of an employee.
- **Time Sheet:** A form that is submitted to an employer, by an employee, that contains the number of hours worked every day by the employee.

UNIT 9.5: Understanding Entrepreneurship

Unit Objectives ◎

At the end of this unit, you will be able to:

1. Discuss the concept of entrepreneurship
2. Discuss the importance of entrepreneurship
3. Describe the characteristics of an entrepreneur
4. Describe the different types of enterprises
5. List the qualities of an effective leader
6. Discuss the benefits of effective leadership
7. List the traits of an effective team
8. Discuss the importance of listening effectively
9. Discuss how to listen effectively
10. Discuss the importance of speaking effectively
11. Discuss how to speak effectively
12. Discuss how to solve problems
13. List important problem solving traits
14. Discuss ways to assess problem solving skills
15. Discuss the importance of negotiation
16. Discuss how to negotiate
17. Discuss how to identify new business opportunities
18. Discuss how to identify business opportunities within your business
19. Understand the meaning of entrepreneur
20. Describe the different types of entrepreneurs
21. List the characteristics of entrepreneurs
22. Recall entrepreneur success stories
23. Discuss the entrepreneurial process
24. Describe the entrepreneurship ecosystem
25. Discuss the government's role in the entrepreneurship ecosystem
26. Discuss the current entrepreneurship ecosystem in India
27. Understand the purpose of the Make in India campaign
28. Discuss the relationship between entrepreneurship and risk appetite
29. Discuss the relationship between entrepreneurship and resilience
30. Describe the characteristics of a resilient entrepreneur
31. Discuss how to deal with failure

9.5.1 Concept Introduction, (Characteristic of an Entrepreneur, types of firms / types of enterprises): Entrepreneurs and Entrepreneurship

Anyone who is determined to start a business, no matter what the risk, is an entrepreneur. Entrepreneurs run their own start-up, take responsibility for the financial risks and use creativity, innovation and vast reserves of self-motivation to achieve success. They dream big and are determined to do whatever it takes to turn their idea into a viable offering. The aim of an entrepreneur is to create an enterprise. The process of creating this enterprise is known as entrepreneurship.

Importance of Entrepreneurship

Entrepreneurship is very important for the following reasons:

1.   It results in the creation of new organizations

2.   It brings creativity into the marketplace

3.   It leads to improved standards of living

4.   It helps develop the economy of a country

Characteristics of Entrepreneurs

All successful entrepreneurs have certain characteristics in common.

They are all:
• Extremely passionate about their work
• Confident in themselves
• Disciplined and dedicated
• Motivated and driven
• Highly creative
• Visionaries
• Open-minded
• Decisive

Entrepreneurs also have a tendency to:
• Have a high risk tolerance
• Thoroughly plan everything
• Manage their money wisely
• Make their customers their priority
• Understand their offering and their market in detail
• Ask for advice from experts when required
• Know when to cut their losses

Examples of Famous Entrepreneurs

Some famous entrepreneurs are:

• Bill Gates (Founder of Microsoft)
• Steve Jobs (Co-founder of Apple)
• Mark Zuckerberg (Founder of Facebook)
• Pierre Omidyar (Founder of eBay)

Types of Enterprises

As an entrepreneur in India, you can own and run any of the following types of enterprises:

Sole Proprietorship In a sole proprietorship, a single individual owns, manages and controls the enterprise. This type of business is the easiest to form with respect to legal formalities. The business and the owner have no separate legal existence. All profit belongs to the proprietor, as do all the losses - the liability of the entrepreneur is unlimited.

Partnership

A partnership firm is formed by two or more people. The owners of the enterprise are called partners. A partnership deed must be signed by all the partners. The firm and its partners have no separate legal existence. The profits are shared by the partners. With respect to losses, the liability of the partners is unlimited. A firm has a limited life span and must be dissolved when anyone of the partners dies, retires, claims bankruptcy or goes insane.

limited liability Partnership (LLP)

In a Limited Liability Partnership or LLP, the partners of the firm enjoy perpetual existence as well as the advantage of limited liability. Each partner's liability is limited to their agreed contribution to the LLP. The partnership and its partners have a separate legal existence.

Tips

• Learn from others' failures.
• Be certain that this is what you want.
• Search for a problem to solve, rather than look for a problem to attach to your idea.

9.5.2 Leadership & Teamwork: Leadership and Leaders

Leadership means setting an example for others to follow. Setting a good example means not asking someone to do something that you wouldn't willingly want to do yourself. Leadership is about figuring out what to do in order to win as a team, and as a company.

Leaders believe in doing the right things. They also believe in helping others to do the right things. An effective leader is someone who:

• Creates an inspiring vision of the future.

• Motivates and inspires his team to pursue that vision.

Leadership Qualities That All Entrepreneurs Need

Building a successful enterprise is only possible if the entrepreneur in charge possesses excellent leadership qualities. Some critical leadership skills that every entrepreneur must have are:

1. **Pragmatism:** This means having the ability to highlight all obstacles and challenges, in order to **resolve issues and reduce risks.**

2. **Humility:** This means admitting to mistakes often and early, and being quick to take responsibility for your actions. Mistakes should be viewed as challenges to overcome, not opportunities to point blame.

3. **Flexibility:** It is critical for a good leader to be very flexible and quickly adapt to change. It is equally critical to know when to adapt and when not to.

4. **Authenticity:** This means showing both, your strengths and your weaknesses. It means being human and showing others that you are human.

5. **Reinvention:** This means refreshing or changing your leadership style when necessary. To do this, it's important to learn where your leadership gaps lie and find out what resources are required to close them.

6. **Awareness:** This means taking the time to recognize how others view you. It means understanding how your presence affects those around you.

Benefits of Effective Leadership

Effective leadership results in numerous benefits. Great leadership leads to the leader successfully:

• Gaining the loyalty and commitment of the team members

• Motivating the team to work towards achieving the company's goals and objectives

• Building morale and instilling confidence in the team members

• Fostering mutual understanding and team-spirit among team members

• Convincing team members about the need to change when a situation requires adaptability

Teamwork and Teams

Teamwork occurs when the people in a workplace combine their individual skills to pursue a common goal. Effective teams are made up of individuals who work together to achieve this common goal. A great team is one who holds themselves accountable for the end result.

Importance of Teamwork in Entrepreneurial Success

For an entrepreneurial leader, building an effective team is critical to the success of a venture. An entrepreneur must ensure that the team he builds possesses certain crucial qualities, traits and characteristics. An effective team is one which has:

1. **Unity of purpose:** All the team members should clearly understand and be equally committed to the purpose, vision and goals of the team.

2. **Great communication skills:** Team members should have the ability to express their concerns, ask questions and use diagrams, and charts to convey complex information.

3. **The ability to collaborate:** Every member should feel entitled to provide regular feedback on new ideas.

4. **Initiative:** The team should consist of proactive individuals. The members should have the enthusiasm to come up with new ideas, improve existing ideas, and conduct their own research.

5. **Visionary members**: The team should have the ability to anticipate problems and act on these potential problem before they turn into real problems.

6. **Great adaptability skills:** The team must believe that change is a positive force. Change should be seen as the chance to improve and try new things.

7. **Excellent organizational skills:** The team should have the ability to develop standard work processes, balance responsibilities, properly plan projects, and set in place methods to measure progress and ROI.

Tips

- Don't get too attached to your original idea. Allow it to evolve and change.
- Be aware of your weaknesses and build a team that will complement your shortfalls.
- Hiring the right people is not enough. You need to promote or incentivize your most talented people to keep them motivated.
- Earn your team's respect.

9.5.3 Communication Skills: listening & Speaking:
The Importance of listening Effectively

Listening is the ability to correctly receive and understand messages during the process of communication. Listening is critical for effective communication. Without effective listening skills, messages can easily be misunderstood. This results in a communication breakdown and can lead to the sender and the receiver of the message becoming frustrated or irritated.

It's very important to note that listening is not the same as hearing. Hearing just refers to sounds that you hear. Listening is a whole lot more than that. To listen, one requires focus. It means not only paying attention to the story, but also focusing on how the story is relayed, the way language and voice is used, and even how the speaker uses their body language. The ability to listen depends on how effectively one can perceive and understand both, verbal and non-verbal cues.

How to listen Effectively

To listen effectively you should:

- Stop talking
- Stop interrupting
- Focus completely on what is being said
- Nod and use encouraging words and gestures
- Be open-minded
- Think about the speaker's perspective
- Be very, very patient
- Pay attention to the tone that is being used
- Pay attention to the speaker's gestures, facial expressions and eye movements
- Not try and rush the person
- Not let the speaker's mannerisms or habits irritate or distract you

How to listen Effectively

How successfully a message gets conveyed depends entirely on how effectively you are able to get it through. An effective speaker is one who enunciates properly, pronounces words correctly, chooses the right words and speaks at a pace that is easily understandable. Besides this, the words spoken out loud need to match the gestures, tone and body language used.

What you say, and the tone in which you say it, results in numerous perceptions being formed. A person who speaks hesitantly may be perceived as having low self-esteem or lacking in knowledge of the discussed topic. Those with a quiet voice may very well be labelled as shy. And those who speak in commanding tones with high levels of clarity, are usually considered to be extremely confident. This makes speaking a very critical communication skill.

How to Speak Effectively

To speak effectively you should:

• Incorporate body language in your speech like eye contact, smiling, nodding, gesturing etc.

• Build a draft of your speech before actually making your speech.

• Ensure that all your emotions and feelings are under control.

• Pronounce your words distinctly with the correct pitch and intensity. Your speech should be crystal clear at all times.

• Use a pleasant and natural tone when speaking. Your audience should not feel like you are putting on an accent or being unnatural in any way.

• Use precise and specific words to drive your message home. Ambiguity should be avoided at all costs.

• Ensure that your speech has a logical flow.

• Be brief. Don't add any unnecessary information.

• Make a conscious effort to avoid irritating mannerisms like fidgeting, twitching etc.

• Choose your words carefully and use simple words that the majority of the audience will have no difficulty understanding.

• Use visual aids like slides or a whiteboard.

• Speak slowly so that your audience can easily understand what you're saying. However, be careful not to speak too slowly because this can come across as stiff, unprepared or even condescending.

• Remember to pause at the right moments.

Tips

• If you're finding it difficult to focus on what someone is saying, try repeating their words in your head.

• Always maintain eye contact with the person that you are communicating with, when speaking as well as listening. This conveys and also encourages interest in the conversation.

9.5.4 Problem Solving & Negotiation skills:
What is a Problem?

As per The Concise Oxford Dictionary (1995), a problem is, "A doubtful or difficult matter requiring a solution"

All problems contain two elements:

1.   Goals   2.   Obstacles

The aim of problem solving is to recognize the obstacles and remove them in order to achieve the goals.

How to Solve Problems

Solving a problem requires a level of rational thinking. Here are some logical steps to follow when faced with an issue:

Step 1: Identify the problem   **Step 2:** Study the problem in detail

Step 3: List all possible solutions   **Step 4:** Select the best solution

Step 5: Implement the chosen solution   **Step 6:** Check that the problem has really been solved

Important Traits for Problem Solving

Highly developed problem solving skills are critical for both, business owners and their employees.

The following personality traits playa big role in how effectively problems are solved:

- Being open minded
- Being proactive
- Having a positive attitude

- Asking the right questions
- Not panicking
- Focusing on the right problem

How to Assess for Problem Solving Skills

As an entrepreneur, it would be a good idea to assess the level of problem solving skills of potential candidates before hiring them. Some ways to assess this skill are through:

1.   **Application forms:** Ask for proof of the candidate's problem solving skills in the application form.

2.   **Psychometric tests:** Give potential candidates logical reasoning and critical thinking tests and see how they fare.

3.   **Interviews:** Create hypothetical problematic situations or raise ethical questions and see how the candidates respond.

4.   **Technical questions:** Give candidates examples of real life problems and evaluate their thought process.

What is Negotiation

Negotiation is a method used to settle differences. The aim of negotiation is to resolve differences through a compromise or agreement while avoiding disputes. Without negotiation, conflicts are likely to lead to resentment between people. Good negotiation skills help satisfy both parties and go a long way towards developing strong relationships.

Why Negotiate

Starting a business requires many, many negotiations. Some negotiations are small while others are critical enough to make or break a startup. Negotiation also plays a big role inside the workplace. As an entrepreneur, you need to know not only know how to negotiate yourself, but also how to train employees in the art of negotiation.

How to Negotiate

Take a look at some steps to help you negotiate:

Step 1: Pre-Negotiation Preparation	Agree on where to meet to discuss the problem, decide who all will be present and set a time limit for the discussion.
Step 2: Discuss the Problem	This involves asking questions, listening to the other side, putting your views forward and clarifying doubts.
Step 3: Clarify the Objective	Ensure that both parties want to solve the same problem and reach the same goal.
Step 4: Aim for a Win-Win Outcome	Try your best to be open minded when negotiating. Compromise and offer alternate solutions to reach an outcome where both parties win.
Step 5: Clearly Define the Agreement	When an agreement has been reached, the details of the agreement should be crystal clear to both sides, with no scope for misunderstandings.
Step 6: Implement the Agreed Upon Solution	Agree on a course of action to set the solution in motion

Tips

- Know exactly what you want before you work towards getting it
- Give more importance to listening and thinking, than speaking
- Focus on building a relationship rather than winning
- Remember that your people skills will affect the outcome
- Know when to walk away - sometimes reaching an agreement may not be possible

9.5.5 Business Opportunities Identification: Entrepreneurs and Opportunities

"The entrepreneur always searches for change, responds to it and exploits it as an opportunity."

Peter Drucker

The ability to identify business opportunities is an essential characteristic of an entrepreneur.

What is an Opportunity?

The word opportunity suggests a good chance or a favourable situation to do something offered by circumstances.

A business opportunity means a good or favourable change available to run a specific business in a given environment, at a given point of time.

Common Questions Faced by Entrepreneurs

A critical question that all entrepreneurs face is how to go about finding the business opportunity that is right for them.

Some common questions that entrepreneurs constantly think about are:

• Should the new enterprise introduce a new product or service based on an unmet need?

• Should the new enterprise select an existing product or service from one market and offer it in another where it may not be available?

• Should the enterprise be based on a tried and tested formula that has worked elsewhere?

It is therefore extremely important that entrepreneurs must learn how to identify new and existing business opportunities and evaluate their chances of success.

When is an Idea an Opportunity?

An idea is an opportunity when:

• It creates or adds value to a customer
• It solves a significant problem, removes a pain point or meets a demand
• Has a robust market and profit margin
• Is a good fit with the founder and management team at the right time and place

Factors to Consider When Looking for Opportunities

Consider the following when looking for business opportunities:

• Economic trends
• Changes in funding
• Changing relationships between vendors, partners and suppliers
• Market trends
• Changes in political support
• Shift in target audience

Ways to Identify New Business Opportunities

1. Identify Market Inefficiencies
   When looking at a market, consider what inefficiencies are present in the market. Think about ways to correct these inefficiencies.

2. Remove Key Hassles
   Rather than create a new product or service, you can innovatively improve a product, service or process.

3. Create Something New

   Think about how you can create a new experience for customers, based on existing business models.

4. Pick a Growing Sector/Industry

   Research and find out which sectors or industries are growing and think about what opportunities you can tap in the same.

5. Think About Product Differentiation

   If you already have a product in mind, think about ways to set it apart from the existing ones.

Ways to Identify Business Opportunities Within Your Business

1. SWOT Analysis

An excellent way to identify opportunities inside your business is by creating a SWOT analysis. The acronym SWOT stands for strengths, weaknesses, opportunities, and threats.

SWOT analysis framework:

STRENGTH	WEAKNESSES
What are your strengths? What unique capabilities do you posses? What do you do better than others? What do others percieve as your strengths?	What are your weaknesses? What do your competitors do better than you?
OPPORTUNITIES	**THREATS**
What Trends may positive! impact you? What oppprtunities are available to you?	**Do** you have solid financial support? What trends may negatively impact you?

SWOT

Consider the following when looking for business opportunities:

By looking at yourself and your competitors using the SWOT framework, you can uncover opportunities that you can exploit, as well as manage and eliminate threats that could derail your success.

2. Establishing Your USP

Establish your USP and position yourself as different from your competitors. Identify why customers should buy from you and promote that reason.

Opportunity Analysis

Once you have identified an opportunity, you need to analyze it.

To analyze an opportunity, you must:

- Focus on the idea
- Focus on the market of the idea
- Talk to industry leaders in the same space as the idea
- Talk to players in the same space as the idea

Tips

Remember, opportunities are situational.

- Look for a proven track record.
- Avoid the latest craze.
- Love your idea.

9.5.6 Entrepreneurship Support Eco - System:
What is an Entrepreneur?

An entrepreneur is a person who:

• Does not work for an employee

• Runs a small enterprise

• Assumes all the risks and rewards of the enterprise, idea, good or service

Types of Entrepreneurs

There are four main types of entrepreneurs:

1. **The Traditional Entrepreneur:** This type of entrepreneur usually has some kind of skill - they can be a carpenter, mechanic, cook etc. They have businesses that have been around for numerous years like restaurants, shops and carpenters. Typically, they gain plenty of experience in a particular industry before they begin their own business in a similar field.

2. **The Growth Potential Entrepreneur:** The desire of this type of entrepreneur is to start an enterprise that will grow, win many customers and make lots of money. Their ultimate aim is to eventually sell their enterprise for a nice profit. Such entrepreneurs usually have a science or technical background.

3. **The Project-Oriented Entrepreneur:** This type of entrepreneur generally has a background in the Arts or psychology. Their enterprises tend to be focus on something that they are very passionate about.

4. **The Lifestyle Entrepreneur:** This type of entrepreneur has usually worked as a teacher or a secretary. They are more interested in selling something that people will enjoy, rather than making lots of money.

Characteristics of an Entrepreneur

Successful entrepreneurs have the following characteristics:

• They are highly motivated

• They are creative and persuasive

• They are mentally prepared to handle each and every task

• They have excellent business skills - they know how to evaluate their cash flow, sales and revenue

• They are willing to take great risks

• They are very proactive - this means they are willing to do the work themselves, rather than wait for someone else to do it

• They have a vision - they are able to see the big picture

• They are flexible and open-minded

• They are good at making decisions

Entrepreneur Success Stories

Dhiru Bhai Ambani

Dhirubhai Ambani began his entrepreneurial career by selling "bhajias" to pilgrims in Mount Girnar on weekends. At 16, he moved to Yemen where he worked as a gas-station attendant, and as a clerk in an oil company. He returned to India with Rs. 50,000 and started a textile trading company. Reliance went on to become the first Indian company to raise money in global markets and the first Indian company to feature in Forbes 500 list.

Dr. Karsanbhai Patel

Karsanbhai Patel made detergent powder in the backyard of his house. He sold his product door-to-door and offered a money back guarantee with every pack that was sold. He charged Rs. 3 per kg when the cheapest detergent at that time was Rs.13 per kg. Dr. Patel eventually started Nirma which became a whole new segment in the Indian domestic detergent market.

The Entrepreneurial Process

Let's take a look at the stages of the entrepreneurial process.

Stage 1: Idea Generation. The entrepreneurial process begins with an idea that has been thought of by the entrepreneur. The idea is a problem that has the potential to be solved.

Stage 2: Germination or Recognition. In this stage a possible solution to the identified problem is thought of.

Stage 3: Preparation or Rationalization. The problem is studied further and research is done to find out how others have tried to solve the same problem.
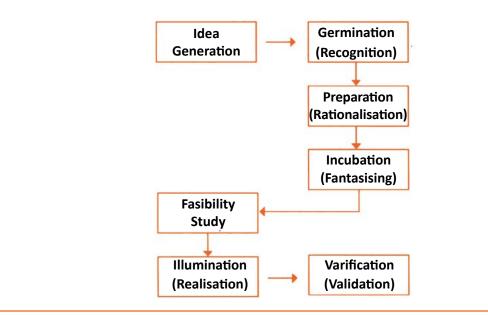
Stage 4: Incubation or Fantasizing. This stage involves creative thinking for the purpose of coming up with more ideas. Less thought is given to the problem areas.

Stage 5: Feasibility Study: The next step is the creation of a feasibility study to determine if the idea will make a profit and if it should be seen through.

Stage 6: Illumination or Realization. This is when all uncertain areas suddenly become clear. The entrepreneur feels confident that his idea has merit.

Stage 7: Verification or Validation. In this final stage, the idea is verified to see if it works and if it is useful.

Take a look at the diagram below to get a better idea of this process.

```
┌──────────────┐         ┌──────────────┐
│     Idea     │  ───▶   │  Germination │
│  Generation  │         │ (Recognition)│
└──────────────┘         └──────────────┘
                                 │
                                 ▼
                         ┌──────────────┐
                         │  Preparation │
                         │(Rationalisation)│
                         └──────────────┘
                                 │
                                 ▼
                         ┌──────────────┐
                         │  Incubation  │
                         │ (Fantasising)│
                         └──────────────┘
         ┌──────────────┐        │
         │  Fasibility  │ ◀──────┘
         │    Study     │
         └──────────────┘
                 │
                 ▼
         ┌──────────────┐         ┌──────────────┐
         │ Illumination │  ───▶   │  Varification │
         │ (Realisation)│         │ (Validation) │
         └──────────────┘         └──────────────┘
```

What is an Entrepreneur?

The entrepreneurship support ecosystem signifies the collective and complete nature of entrepreneurship. New companies emerge and flourish not only because of the courageous, visionary entrepreneurs who launch them, but they thrive as they are set in an environment or 'ecosystem' made of private and public participants. These players nurture and sustain the new ventures, facilitating the entrepreneurs' efforts.

An entrepreneurship ecosystem comprises of the following six domains:
1. **Favourable Culture:** This includes elements such as tolerance of risk and errors, valuable networking and positive social standing of the entrepreneur.

2. **Facilitating Policies & Leadership:** This includes regulatory framework incentives and existence of public research institutes.

3. **Financing Options:** Angel financing, venture capitalists and micro loans would be good examples of this.

4. **Human Capital:** This refers to trained and untrained labour, entrepreneurs and entrepreneurship training programmes, etc.

5. **Conducive Markets for Products & Services:** This refers to an existence or scope of existence of a market for the product/service.

6. **Institutional & Infrastructural Support:** This includes legal and financing advisers, telecommunications, digital and transportation infrastructure, and entrepreneurship networking programmes.

These domains indicate whether there is a strong entrepreneurship support ecosystem and what actions should the government put in place to further encourage this ecosystem. The six domains and their various elements have been graphically depicted.

Early Customers
- Early adopters for proof-of-concept
- Expertise in productizing
- Reference customer
- First reviews
- Distribution channels

Leadership
- Unequivocal support
- Social legitimacy
- Open door for advocate
- Entrepreneurship strategy
- urgency, crisis and challenge

Government
- Institutions
  - e.g. Investment, support
- Financial support
  - e.g. for R&D, jump start funds
  Regulatory framework incentives
  e.g. Tax benefits
- Research insntutes
- Venture-friendly legislanon
- e.g. Bankruptcy, contract enforcement, proerty rights, and labour

Financial Capital
- Micro-loans
- Angel investors, friends and family
- Zero-stage venture capital
- Venture capital funds
- Private equity
- Public capital markets
- Debt

Success stories
- Visible successes
- Wealth generation for founders
- International reputation

Social norms
- Tolerance of risk, mistakes, failure
- Innovation, creativity, experimentation
- Social status of entrepreneur
- Wealth creation
- Zones, incubation centers, clusters
- Ambition, drive, hunger

Networks
- Entrepreneur's networks
- Diaspora networks
- Multinational corporations

Labour
- Skilled and unskilled
- Serial entrepreneures
- Later generation family

Educational Institutions
- General degrees (professional and academic)
- Specific entrepreneurship training

Infrastructure
- Telecommunications
- Transportation & logistics
- Energy
- Zones, incubation centers, clusters

Support Professions
- Legal
- Accounting
- Investment bankers

Non-Government Institution
- Entrepreneurship promonon in non-profits
- Business plan contests
- Conferences
- Entrepreneur- friendly association

Entrepreneurship

Finance
Culture
Policy
Supports
Market
Human Capital

Every entrepreneurship support ecosystem is unique and all the elements of the ecosystem are interdependent. Although every region's entrepreneurship ecosystem can be broadly described by the above features, each ecosystem is the result of the hundred elements interacting in highly complex and particular ways.

Entrepreneurship ecosystems eventually become (largely) self-sustaining. When the six domains are resilient enough, they are mutually beneficial. At this point, government involvement can and should be significantly minimized. Public leaders do not need to invest a lot to sustain the ecosystem. It is imperative that the entrepreneurship ecosystem incentives are formulated to be self-liquidating, hence focusing on sustainability of the environment.

Government's Role in the Entrepreneurship Ecosystem

Encouraging new ventures is a major focus for policymakers. Governments across the world are recognizing that new businesses flourish in distinctive types of supportive environments.

Policymakers should study the scenario and take into account the following points whilst they formulate policies and regulations that enable successful entrepreneurship support ecosystems.

1. Policymakers should avoid regulations that discourage new entrants and work towards building efficient methods for business startups. Policies and regulations that favour existing, dominant firms over entrepreneurial ventures, restrict competition and obstruct entry for new companies.

2. Instead of developing policies conceptually intended to correct market failures, policymakers should interact with entrepreneurs and understand the challenges faced by them. The feedback should be used to develop policies that incite idea exploration, product development and increased rates of deal flow.

3. Entrepreneurial supporters should create a database that enables identifying who the participants in the ecosystem are and how they are connected. These ecosystem maps are useful tools in developing engagement strategies.

4. Disruptions are unavoidable in economic and social life. However, it's important to note that economic disruption gives rise to entrepreneurial opportunities. Architects of the entrepreneurship ecosystems (entrepreneurs, mentors, policymakers and consumers,) should anticipate these dips, thus capitalizing on the opportunities they create.

The need for effective strategies to enable local entrepreneurship support ecosystems is a practical one. Better understanding of the actual ecosystems provides a framework within which policy makers can ask relevant questions, envisage more efficient approaches, and assess ensuing outcomes.

Snapshot of the Entrepreneurship Ecosystem in India

Entrepreneurship has earned a newfound respect in India. Many Indians, with exposure to the world of business, who traditionally would have opted for a job, are setting up their own ventures. Many elements of the entrepreneurship ecosystem are beginning to come together.

For example, increase in venture capitalists, government schemes and incubators, academia industry linkages, and emerging clusters and support to rural economy. All these initiatives are effective but there is a need to scale up and enrich the ecosystem further in the following ways:

1. We need to review our attitude towards failures and accept them as learning experiences.

2. We must encourage the educated to become entrepreneurs and provide students in schools and colleges with entrepreneurship skills.

3.   Universities, research labs and the government need to play the role of enablers in the entrepreneurship support ecosystem.

4.   Policymakers need to focus on reducing the obstacles such as corruption, red tape and bureaucracy.

5.   We need to improve our legal systems and court international venture capital firms and bring them to India.

6.   We must devise policies and methods to reach the secondary and tertiary towns in India, where people do not have access to the same resources available in the cities.

Today, there is a huge opportunity in this country to introduce innovative solutions that are capable of scaling up, and collaborating within the ecosystem as well as enriching it.

Make in India Campaign

Every entrepreneur has certain needs. Some of their important needs are:

•   To easily get loans

•   To easily find investors

•   To get tax exemptions

•   To easily access resources and good infrastructure

•   To enjoy a procedure that is free of hassles and is quick

•   To be able to easily partner with other firms

The Make in India campaign, launched by Prime Minister Modi aims to satisfy all these needs of young, aspiring entrepreneurs. Its objective is to:

•   Make investment easy

•   Support new ideas

•   Enhance skill development

•   Safeguard the ideas of entrepreneurs

•   Create state-of-the-art facilities for manufacturing goods

Tips

•   Research the existing market, network with other entrepreneurs, venture capitalists, angel investors, and thoroughly review the policies in place to enable your entrepreneurship.

•   Failure is a stepping stone and not the end of the road. Review yours and your peers' errors and correct them in your future venture.

•   Be proactive in your ecosystem. Identify the key features of your ecosystem and enrich them to ensure self-sustainability of your entrepreneurship support ecosystem.

9.5.7 Risk Appetite & Resilience: Entrepreneurship and Risk

Entrepreneurs are inherently risk takers. They are path-makers not path-takers. Unlike a normal, cautious person, an entrepreneur would not think twice about quitting his job (his sole income) and taking a risk on himself and his idea.

An entrepreneur is aware that while pursuing his dreams, assumptions can be proven wrong and unforeseen events may arise. He knows that after dealing with numerous problems, success is still not guaranteed. Entrepreneurship is synonymous with the ability to take risks. This ability, called risk-appetite, is an entrepreneurial trait that is partly genetic and partly acquired.

What is Risk Appetite?

Risk appetite is defined as the extent to which a company is equipped to take risk, in order to achieve its objectives. Essentially, it refers to the balance, struck by the company, between possible profits and the hazards caused by changes in the environment (economic ecosystem, policies, etc.). Taking on more risk may lead to higher rewards but have a high probability of losses as well. However, being too conservative may go against the company as it can miss out on good opportunities to grow and reach their objectives.

The levels of risk appetite can be broadly categorized as "low", "medium" and "high." The company's entrepreneur(s) have to evaluate all potential alternatives and select the option most likely to succeed. Companies have varying levels of risk appetites for different objectives.

The levels depend on:

• The type of industry

• Market pressures

• Company objectives
For example, a startup with a revolutionary concept will have a very high risk appetite. The startup can afford short term failures before it achieves longer term success. This type of appetite will not remain constant and will be adjusted to account for the present circumstances of the company.

Risk Appetite Statement

Companies have to define and articulate their risk appetite in sync with decisions made about their objectives and opportunities. The point of having a risk appetite statement is to have a framework that clearly states the acceptance and management of risk in business. It sets risk taking limits within the company. The risk appetite statement should convey the following:

• The nature of risks the business faces.

• Which risks the company is comfortable taking on and which risks are unacceptable.

• How much risk to accept in all the risk categories.

• The desired tradeoff between risk and reward.

• Measures of risk and methods of examining and regulating risk exposures.

Entrepreneurship and Resilience

Entrepreneurs are characterized by a set of qualities known as resilience. These qualities play an especially large role in the early stages of developing an enterprise. Risk resilience is an extremely valuable characteristic as it is believed to protect entrepreneurs against the threat of challenges and changes in the business environment.

What is Entrepreneurial Resilience?

Resilience is used to describe individuals who have the ability to overcome setbacks related to their life and career aspirations. A resilient person is someone who is capable of easily and quickly recovering from setbacks. For the entrepreneur, resilience is a critical trait.

Entrepreneurial resilience can be enhanced in the following ways:

- By developing a professional network of coaches and mentors

- By accepting that change is a part of life

- By viewing obstacles as something that can be overcome

Characteristics of a Resilient Entrepreneur

The characteristics required to make an entrepreneur resilient enough to go the whole way in their business enterprise are:

- A strong internal sense of control
- Strong social connections
- Skill to learn from setbacks
- Ability to look at the bigger picture
- Ability to diversify and expand
- Survivor attitude
- Cash-flow conscious habits
- Attention to detail

Tips

- Cultivate a great network of clients, suppliers, peers, friends and family. This will not only help you promote your business, but will also help you learn, identify new opportunities and stay tuned to changes in the market.
- Don't dwell on setbacks. Focus on what the you need to do next to get moving again.
- While you should try and curtail expenses, ensure that it is not at the cost of your growth.

9.5.8 Success & Failures: Understanding Successes and Failures in Entrepreneurship

Shyam is a famous entrepreneur, known for his success story. But what most people don't know, is that Shyam failed numerous times before his enterprise became a success. Read his interview to get an idea of what entrepreneurship is really about, straight from an entrepreneur who has both, failed and succeeded.

Interviewer: Shyam, I have heard that entrepreneurs are great risk-takers who are never afraid of failing. Is this true?

Shyam: Ha ha, no of course it's not true! Most people believe that entrepreneurs need to be fearlessly enthusiastic. But the truth is, fear is a very normal and valid human reaction, especially when you are planning to start your own business! In fact, my biggest fear was the fear of failing. The reality is, entrepreneurs fail as much as they succeed. The trick is to not allow the fear of failing to stop you from going ahead with your plans. Remember, failures are lessons for future success!

Interviewer: What, according to you, is the reason that entrepreneurs fail?

Shyam: Well, there is no one single reason why entrepreneurs fail. An entrepreneur can fail due to numerous reasons. You could fail because you have allowed your fear of failure to defeat you. You could fail because you are unwilling to delegate (distribute) work. As the saying goes, "You can do anything, but not everything!" You could fail because you gave up too easily - maybe you were not persistent enough. You could fail because you were focusing your energy on small, insignificant tasks and ignoring the tasks that were most important. Other reasons for failing are partnering with the wrong people, not being able to sell your product to the right customers at the right time at the right price... and many more reasons!

Interviewer: As an entrepreneur, how do you feel failure should be looked at?

Shyam: I believe we should all look at failure as an asset, rather than as something negative. The way I see it, if you have an idea, you should try to make it work, even if there is a chance that you will fail. That's because not trying is failure right there, anyway! And failure is not the worst thing that can happen. I think having regrets because of not trying, and wondering 'what if' is far worse than trying and actually failing.

Interviewer: How did you feel when you failed for the first time?

Shyam: I was completely heartbroken! It was a very painful experience. But the good news is, you do recover from the failure. And with every subsequent failure, the recovery process gets a lot easier. That's because you start to see each failure more as a lesson that will eventually help you succeed, rather than as an obstacle that you cannot overcome. You will start to realize that failure has many benefits.

Interviewer: Can you tell us about some of the benefits of failing?

Shyam: One of the benefits that I have experienced personally from failing is that the failure made me see things in a new light. It gave me answers that I didn't have before. Failure can make you a lot stronger. It also helps keep your ego in control.

Interviewer: What advice would you give entrepreneurs who are about to start their own enterprises?

Shyam: I would tell them to do their research and ensure that their product is something that is actually wanted by customers. I'd tell them to pick their partners and employees very wisely and cautiously. I'd tell them that it's very important to be aggressive - push and market your product as aggressively as possible. I would warn them that starting an enterprise is very expensive and that they should be prepared for a situation where they run out of money.

I would tell them to create long term goals and put a plan in action to achieve that goal. I would tell them to build a product that is truly unique. Be very careful and ensure that you are not copying another startup. Lastly, I'd tell them that it's very important that they find the right investors.

Interviewer: That's some really helpful advice, Shyam! I'm sure this will help all entrepreneurs to be more prepared before they begin their journey! Thank you for all your insight!

Tips

- Remember that nothing is impossible.
- Identify your mission and your purpose before you start.
- Plan your next steps - don't make decisions hastily.

UNIT 9.6: Preparing to be an Entrepreneur

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Discuss how market research is carried out

2. Describe the 4 Ps of marketing

3. Discuss the importance of idea generation

4. Recall basic business terminology

5. Discuss the need for CRM

6. Discuss the benefits of CRM

7. Discuss the need for networking

8. Discuss the benefits of networking

9. Understand the importance of setting goals

10. Differentiate between short-term, medium-term and long-term goals

11. Discuss how to write a business plan

12. Explain the financial planning process

13. Discuss ways to manage your risk

14. Describe the procedure and formalities for applying for bank finance

15. Discuss how to manage your own enterprise

16. List important questions that every entrepreneur should ask before starting an enterprise

9.6.1 Market Study / The 4 Ps of Marketing / Importance of an IDEA: Understanding Market Research

Market research is the process of gathering, analyzing and interpreting market information on a product or service that is being sold in that market. It also includes information on:

- Past, present and prospective customers
- Customer characteristics and spending habits
- The location and needs of the target market
- The overall industry
- Relevant competitors

Market research involves two types of data:

- Primary information. This is research collected by yourself or by someone hired by you.
- Secondary information. This is research that already exists and is out there for you to find and use.

Primary research

Primary research can be of two types:

- Exploratory: This is open-ended and usually involves detailed, unstructured interviews.

- Specific: This is precise and involves structured, formal interviews. Conducting specific research is the more expensive than conducting exploratory research.

Secondary research

Secondary research uses outside information. Some common secondary sources are:

- Public sources: These are usually free and have a lot of good information. Examples are government departments, business departments of public libraries etc.

- Commercial sources: These offer valuable information but usually require a fee to be paid. Examples are research and trade associations, banks and other financial institutions etc.

- Educational institutions: These offer a wealth of information. Examples are colleges, universities, technical institutes etc.

The 4 Ps of Marketing

The 4 Ps of marketing are Product, Price, Promotion and Place. Let's look at each of these 4 Ps in detail.

Product

A product can be:

- A tangible good
- An intangible service

Whatever your product is, it is critical that you have a clear understanding of what you are offering, and what its unique characteristics are, before you begin with the marketing process.

Some questions to ask yourself are:

- What does the customer want from the product/service?
- What needs does it satisfy?
- Are there any more features that can be added?
- Does it have any expensive and unnecessary features?
- How will customers use it?
- What should it be called?
- How is it different from similar products?
- How much will it cost to produce?
- Can it be sold at a profit?

Price

Once all the elements of Product have been established, the Price factor needs to be considered.

The Price of a Product will depend on several factors such as profit margins, supply, demand and the marketing strategy.

Some questions to ask yourself are:

• What is the value of the product/service to customers?

• Do local products/services have established price points?

• Is the customer price sensitive?

• Should discounts be offered?

• How is your price compared to that of your competitors?

Promotion

Once you are certain about your Product and your Price, the next step is to look at ways to promote it. Some key elements of promotion are advertising, public relations, social media marketing, email marketing, search engine marketing, video marketing and more.

Some questions to ask yourself are:

• Where should you promote your product or service?

• What is the best medium to use to reach your target audience?

• When would be the best time to promote your product?

• How are your competitors promoting their products?

Price

According to most marketers, the basis of marketing is about offering the right product, at the right price, at the right place, at the right time. For this reason, selecting the best possible location is critical for converting prospective clients into actual clients.

Some questions to ask yourself are:

• Will your product or service be looked for in a physical store, online or both?

• What should you do to access the most appropriate distribution channels?

• Will you require a sales force?

• Where are your competitors offering their products or services?

• Should you follow in your competitors' footsteps?

• Should you do something different from your competitors?

Importance of an IDEA

Ideas are the foundation of progress. An idea can be small or ground-breaking, easy to accomplish or extremely complicated to implement. Whatever the case, the fact that it is an idea gives it merit. Without ideas, nothing is possible. Most people are afraid to speak out their ideas, out for fear of being ridiculed. However, if are an entrepreneur and want to remain competitive and innovative, you need to bring your ideas out into the light.

Some ways to do this are by:

- Establishing a culture of brainstorming where you invite all interested parties to contribute

- Discussing ideas out loud so that people can add their ideas, views, opinions to them

- Being open minded and not limiting your ideas, even if the idea who have seems ridiculous

- Not discarding ideas that you don't work on immediately, but instead making a note of them and shelving them so they can be revisited at a later date

Tips

- Keep in mind that good ideas do not always have to be unique.

- Remember that timing plays a huge role in determining the success of your idea.

- Situations and circumstances will always change, so be flexible and adapt your idea accordingly.

9.6.2 Business Entity Concepts: Basic Business Terminology

If your aim is to start and run a business, it is crucial that you have a good understanding of basic business terms. Every entrepreneur should be well versed in the following terms:

- Accounting: A systematic method of recording and reporting financial transactions.

- Accounts payable: Money owed by a company to its creditors.

- Accounts Receivable: The amount a company is owed by its clients.

- Assets: The value of everything a company owns and uses to conduct its business.

- Balance Sheet: A snapshot of a company's assets, liabilities and owner's equity at a given moment.

- Bottom Line: The total amount a business has earned or lost at the end of a month.

- Business: An organization that operates with the aim of making a profit.

- Business to Business (B2B): A business that sells goods or services to another business.

- Business to Consumer (B2C): A business that sells goods or services directly to the end user.

- Capital: The money a business has in its accounts, assets and investments. The two main types of capital are debt and equity.

- Cash Flow: The overall movement of funds through a business each month, including income and expenses.

- Cash Flow Statement: A statement showing the money that entered and exited a business during a specific period of time.

- Contract: A formal agreement to do work for pay.

- Depreciation: The degrading value of an asset over time.

- Expense: The costs that a business incurs through its operations.

- Finance: The management and allocation of money and other assets.

- Financial Report: A comprehensive account of a business' transactions and expenses.

- Fixed Cost: A one-time expense.

- Income Statement (Profit and Loss Statement): Shows the profitability of a business during a period of time.

- Liabilities: The value of what a business owes to someone else.

- Marketing: The process of promoting, selling and distributing a product or service.

- Net Income/Profit: Revenues minus expenses.

- Net Worth: The total value of a business.

- Payback Period: The amount of time it takes to recover the initial investment of a business.

- Profit Margin: The ratio of profit, divided by revenue, displayed as a percentage.

- Return on Investment (ROI): The amount of money a business gets as return from an investment.

- Revenue: The total amount of income before expenses are subtracted.

- Sales Prospect: A potential customer.

- Supplier: A provider of supplies to a business.

- Target Market: A specific group of customers at which a company's products and services are aimed.

- Valuation: An estimate of the overall worth of the business.

- Variable Cost: Expenses that change in proportion to the activity of a business.

- Working Capital: Calculated as current assets minus current liabilities.

9.6.3 CRM & Networking: What is CRM?

CRM stands for Customer Relationship Management. Originally the expression Customer Relationship Management meant managing one's relationship with customers. However, today it refers to IT systems and software designed to help companies manage their relationships.

The Need for CRM

The better a company can manage its relationships with its customers, the higher the chances of the company's success. For any entrepreneur, the ability to successfully retain existing customers and expand the enterprise is paramount. This is why IT systems that focus on addressing the problems of dealing with customers on a daily basis are becoming more and more in demand.

Customer needs change over time, and technology can make it easier to understand what customers really want. This insight helps companies to be more responsive to the needs of their customers. It enables them to modify their business operations when required, so that their customers are always served in the best manner possible. Simply put, CRM helps companies recognize the value of their clients and enables them to capitalize on improved customer relations.

Benefits of CRM

CRM has a number of important benefits:

- It helps improve relations with existing customers which can lead to:
  - Increased sales
  - Identification of customer needs
  - Cross-selling of products
- It results in better marketing of one's products or services
- It enhances customer satisfaction and retention
- It improves profitability by identifying and focusing on the most profitable customers

9.3.4 What is Networking?

In business, networking means leveraging your business and personal connections in order to bring in a regular supply of new business. This marketing method is effective as well as low cost. It is a great way to develop sales opportunities and contacts. Networking can be based on referrals and introductions, or can take place via phone, email, and social and business networking websites.

9.3.5 The Need for Networking

Networking is an essential personal skill for business people, but it is even more important for entrepreneurs. The process of networking has its roots in relationship building. Networking results in greater communication and a stronger presence in the entrepreneurial ecosystem. This helps build strong relationships with other entrepreneurs.

Business networking events held across the globe play a huge role in connecting like-minded entrepreneurs who share the same fundamental beliefs in communication, exchanging ideas and converting ideas into realities. Such networking events also play a crucial role in connecting entrepreneurs with potential investors. Entrepreneurs may have vastly different experiences and backgrounds but they all have a common goal in mind -they all seek connection, inspiration, advice, opportunities and mentors. Networking offers them a platform to do just that.

Benefits of Networking

Networking offers numerous benefits for entrepreneurs. Some of the major benefits are:

- Getting high quality leads
- Increased business opportunities
- Good source of relevant connections
- Advice from like-minded entrepreneurs
- Gaining visibility and raising your profile
- Meeting positive and enthusiastic people
- Increased self-confidence
- Satisfaction from helping others
- Building strong and lasting friendships

Tips

- Use social media interactions to identify needs and gather feedback.
- When networking, ask open-ended questions rather than yes/no type questions.

9.6.4 Business Plan: Why Set Goals

Setting goals is important because it gives you long-term vision and short-term motivation. Goals can be short term, medium term and long term.

Short-Term Goals

• These are specific goals for the immediate future.

Example: Repairing a machine that has failed.

Medium-Term Goals

• These goals are built on your short term goals.

• They do not need to be as specific as your short term goals.

Example: Arranging for a service contract to ensure that your machines don't fail again.

Long-Term Goals

These goals require time and planning.

They usually take a year or more to achieve.

Example: Planning your expenses so you can buy new machinery

Why Create a Business Plan

A business plan is a tool for understanding how your business is put together. It can be used to monitor progress, foster accountable and control the fate of the business. It usually offers a 3-5 year projection and outlines the plan that the company intends to follow to grow its revenues. A business plan is also a very important tool for getting the interest of key employees or future investors.

A business plan typically comprises of eight elements.

Elements of a Business Plan

Executive Summary

The executive summary follows the title page. The summary should clearly state your desires as the business owner in a short and businesslike way. It is an overview of your business and your plans. Ideally this should not be more than 1-2 pages.

Your Executive Summary should include:

• The Mission Statement: Explain what your business is all about.

Example: Nike's Mission Statement

Nike's mission statement is "To bring inspiration and innovation to every athlete in the world."

• Company Information: Provide information like when your business was formed, the names and roles of the founders, the number of employees, your business location(s) etc.

• Growth Highlights: Mention examples of company growth. Use graphs and charts where possible.

• Your Products/Services: Describe the products or services provided.

• Financial Information: Provide details on current bank and investors.

• Summarize future plans: Describe where you see your business in the future.

Business Description

The second section of your business plan needs to provide a detailed review of the different elements of your business. This will help potential investors to correctly understand your business goal and the uniqueness of your offering.

Your Business Description should include:

• A description of the nature of your business

• The market needs that you are aiming to satisfy

• The ways in which your products and services meet these needs

• The specific consumers and organizations that you intend to serve

• Your specific competitive advantages

Market Analysis

The market analysis section usually follows the business description. The aim of this section is to showcase your industry and market knowledge. This is also the section where you should lay down your research findings and conclusions.

Your Market Analysis should include:

• Your industry description and outlook

• Information on your target market

• The needs and demographics of your target audience

• The size of your target market

• The amount of market share you want to capture

• Your pricing structure

• Your competitive analysis

• Any regulatory requirements

Organization & Management

This section should come immediately after the Market Analysis.

Your Organization & Management section should include:

• Your company's organizational structure

• Details of your company's ownership

• Details of your management team

• Qualifications of your board of directors

• Detailed descriptions of each division/department and its function

• The salary and benefits package that you offer your people

• The incentives that you offer

Service or Product Line

The next section is the service or product line section. This is where you describe your service or product, and stress on their benefits to potential and current customers. Explain in detail why your product of choice will fulfill the needs of your target audience.

Your Service or Product Line section should include:

- A description of your product/service

- A description of your product or service's life cycle

- A list of any copyright or patent filings

- A description of any R&D activities that you are involved in or planning

Marketing & Sales

Once the Service or Product Line section of your plan has been completed, you should start on the description of the marketing and sales management strategy for your business.

Your Marketing section should include the following strategies:

- **Market penetration strategy:** This strategy focuses on selling your existing products or services in existing markets, in order to increase your market share.

- **Growth strategy:** This strategy focuses on increasing the amount of market share, even if it reduces earnings in the short-term.

- **Channels of distribution strategy:** These can be wholesalers, retailers, distributers and even the internet.

- Communication strategy: These can be written strategies (e-mail, text, chat), oral strategies (phone calls, video chats, face-to-face conversations), non-verbal strategies (body language, facial expressions, tone of voice) and visual strategies (signs, webpages, illustrations).

Your Sales section should include the following information:

- A salesforce strategy: This strategy focuses on increasing the revenue of the enterprise.

- A breakdown of your sales activities: This means detailing out how you intend to sell your products or services - will you sell it offline or online, how many units do you intend to sell, what price do you plan to sell each unit at, etc.

Funding Request

This section is specifically for those who require funding for their venture.

The Funding Request section should include the following information:

- How much funding you currently require.

- How much funding you will require over the next five years. This will depend on your longterm goals.

- The type of funding you want and how you plan to use it. Do you want funding that can be used only for a specific purpose, or funding that can be used for any kind of requirement?

- Strategic plans for the future. This will involve detailing out your long-term plans - what these plans are and how much money you will require to put these plans in motions.

- Historical and prospective financial information. This can be done by creating and maintaining all your financial records, right from the moment your enterprise started, to the present day. Documents required for this are your balance sheet which contains details of your company's assets and liabilities, your income statement which lists your company's revenues, expenses and net income for the year, your tax returns (usually for the last three years) and your cash flow budget which lists the cash that came in, the cash that went out and states whether you had a cash deficit (negative balance) or surplus (positive balance) at the end of each month.

Financial Planning

Before you begin building your enterprise, you need to plan your finances. Take a look at the steps for financial planning:

Step 1: Create a financial plan. This should include your goals, strategies and timelines for accomplishing these goals.

Step 2: Organize all your important financial documents. Maintain a file to hold your investment details, bank statements, tax papers, credit card bills, insurance papers and any other financial records.

Step 3: Calculate your net worth. This means figure out what you own (assets like your house, bank accounts, investments etc.), and then subtract what you owe (liabilities like loans, pending credit card amounts etc.) the amount you are left with is your net worth.

Step 4: Make a spending plan. This means write down in detail where your money will come from, and where it will go.

Step 5: Build an emergency fund. A good emergency fund contains enough money to cover at least 6 months' worth of expenses.

Step 6: Set up your insurance. Insurance provides long term financial security and protects you against risk.

Risk Management

As an entrepreneur, it is critical that you evaluate the risks involved with the type of enterprise that you want to start, before you begin setting up your company. Once you have identified potential risks, you can take steps to reduce them. Some ways to manage risks are:

• Research similar business and find out about their risks and how they were minimized.

• Evaluate current market trends and find out if similar products or services that launched a while ago are still being well received by the public.

• Think about whether you really have the required expertise to launch your product or service.

• Examine your finances and see if you have enough income to start your enterprise.

• Be aware of the current state of the economy, consider how the economy may change over time, and think about how your enterprise will be affected by any of those changes.

• Create a detailed business plan.

Tips

• Ensure all the important elements are covered in your plan.

• Scrutinize the numbers thoroughly.

• Be concise and realistic.

• Be conservative in your approach and your projections.

• Use visuals like charts, graphs and images wherever possible.

9.6.5 Procedure and Formalities for Bank Finance: The Need for Bank Finance

For entrepreneurs, one of the most difficult challenges faced involves securing funds for startups. With numerous funding options available, entrepreneurs need to take a close look at which funding methodology works best for them. In India, banks are one of the largest funders of startups, offering funding to thousands of startups every year.

What Information Should Entrepreneurs Offer Banks for Funding?

When approaching a bank, entrepreneurs must have a clear idea of the different criteria that banks use to screen, rate and process loan applications. Entrepreneurs must also be aware of the importance of providing banks with accurate and correct information. It is now easier than ever for financial institutions to track any default behaviour of loan applicants. Entrepreneurs looking for funding from banks must provide banks with information relating to their general credentials, financial situation and guarantees or collaterals that can be offered.

General Credentials

This is where you, as an entrepreneur, provide the bank with background information on yourself. Such information includes:

- Letter(s) of Introduction: This letter should be written by a respected business person who knows you well enough to introduce you. The aim of this letter is set across your achievements and vouch for your character and integrity.

- Your Profile: This is basically your resume. You need to give the bank a good idea of your educational achievements, professional training, qualifications, employment record and achievements.

- Business Brochure: A business brochure typically provides information on company products, clients, how long the business has been running for etc.

- Bank and Other References: If you have an account with another bank, providing those bank references is a good idea.

- Proof of Company Ownership or Registration: In some cases, you may need to provide the bank with proof of company ownership and registration. A list of assets and liabilities may also be required.

Financial Situation

Banks will expect current financial information on your enterprise. The standard financial reports you should be prepared with are:

- Balance Sheet
- Cash-Flow Statement
- Business Plan

- Profit-and-Loss Account
- Projected Sales and Revenues
- Feasibility Study

Usually banks will refuse to grant you a loan without security. You can offer assets which the bank can seize and sell off if you do not repay the loan. Fixed assets like machinery, equipment, vehicles etc. are also considered to be security for loans.

The Lending Criteria of Banks

Your request for funding will have a higher chance of success if you can satisfy the following lending criteria:

- Good cash flow
- Adequate shareholders' funds
- Adequate security
- Experience in business
- Good reputation

The Procedure

To apply for funding the following procedure will need to be followed.

1. Submit your application form and all other required documents to the bank.
2. The bank will carefully assess your credit worthiness and assign ratings by analyzing your business information with respect to parameters like management, financial, operational and industry information as well as past loan performance.
3. The bank will make a decision as to whether or not you should be given funding.

Tips

- Get advice on funding options from experienced bankers.
- Be cautious and avoid borrowing more than you need, for longer than you need, at an interest rate that is higher than you are comfortable with.

9.6.6 Enterprise Management - An Overview: How to Manage Your Enterprise

To manage your enterprise effectively you need to look at many different aspects, right from managing the day-to-day activities to figuring out how to handle a large scale event. Let's take a look at some simple steps to manage your company effectively.

Step 1: Use your leadership skills and ask for advice when required.

Let's take the example of Ramu, an entrepreneur who has recently started his own enterprise. Ramu has good leadership skills - he is honest, communicates well, knows how to delegate work etc. These leadership skills definitely help Ramu in the management of his enterprise. However, sometimes Ramu comes across situations that he is unsure how to handle. What should Ramu do in this case? One solution is for him to find a more experienced manager who is willing to mentor him. Another solution is for Ramu to use his networking skills so that he can connect with managers from other organizations, who can give him advice on how to handle such situations.

Step 2: Divide your work amongst others - realize that you cannot handle everything yourself.

Even the most skilled manager in the world will not be able to manage every single task that an enterprise will demand of him. A smart manager needs to realize that the key to managing his enterprise lies in his dividing all his work between those around him. This is known as delegation. However, delegating is not enough. A manager must delegate effectively if he wants to see results. This is important because delegating, when done incorrectly, can result in you creating even more work for yourself. To delegate effectively, you can start by making two lists. One list should contain the things that you know you need to handle yourself. The second list should contain the things that you are confident can be given to others to manage and handle. Besides incorrect delegation, another issue that may arise is over-delegation. This means giving away too many of your tasks to others. The problem with this is, the more tasks you delegate, the more time you will spend tracking and monitoring the work progress of those you have handed the tasks to. This will leave you with very little time to finish your own work.

Step 3: Hire the right people for the job. Hiring the right people goes a long way towards effectively managing your enterprise. To hire the best people suited for the job, you need to be very careful with your interview process. You should ask potential candidates the right questions and evaluate their answers carefully. Carrying out background checks is always a good practice. Running a credit check is also a good idea, especially if the people you are planning to hire will be handling your money. Create a detailed job description for each role that you want filled and ensure that all candidates have a clear and correct understanding of the job description. You should also have an employee manual in place, where you put down every expectation that you have from your employees. All these actions will help ensure that the right people are approached for running your enterprise.

Step 4: Motivate your employees and train them well.

Your enterprise can only be managed effectively if your employees are motivated to work hard for your enterprise. Part of being motivated involves your employees believing in the vision and mission of your enterprise and genuinely wanting to make efforts towards pursuing the same. You can motivate your employees with recognition, bonuses and rewards for achievements. You can also motivate them by telling them about how their efforts have led to the company's success. This will help them feel pride and give them a sense of responsibility that will increase their motivation.

Besides motivating your people, your employees should be constantly trained in new practices and technologies. Remember, training is not a one-time effort. It is a consistent effort that needs to be carried out regularly.

Step 5: Train your people to handle your customers well.

Your employees need to be well-versed in the art of customer management. This means they should be able to understand what their customers want, and also know how to satisfy their needs. For them to truly understand this, they need to see how you deal effectively with customers. This is called leading by example. Show them how you sincerely listen to your clients and the efforts that you put into understand their requirements. Let them listen to the type of questions that you ask your clients so they understand which questions are appropriate.

Step 6: Market your enterprise effectively.

Use all your skills and the skills of your employees to market your enterprise in an effective manner. You can also hire a marketing agency if you feel you need help in this area.

Now that you know what is required to run your enterprise effectively, put these steps into play, and see how much easier managing your enterprise becomes!

Tips

- Get advice on funding options from experienced bankers.

- Be cautious and avoid borrowing more than you need, for longer than you need, at an interest rate that is higher than you are comfortable with.

9.6.7. 20 Questions to Ask Yourself Before Considering Entrepreneurship

1. Why am I starting a business?

2. What problem am I solving?

3. Have others attempted to solve this problem before? Did they succeed or fail?

4. Do I have a mentor! or industry expert that I can call on?

5. Who is my ideal customer2?

6. Who are my competitors3?

7. What makes my business idea different from other business ideas?

8. What are the key features of my product or service?

9. Have I done a SWOT4 analysis?

10. What is the size of the market that will buy my product or service?

11. What would it take to build a minimum viable products to test the market?

12. How much money do I need to get started?

13. Will I need to get a loan?

14. How soon will my products or services be available?

15. When will I break even6 or make a profit?

16. How will those who invest in my idea make a profit?

17. How should I set up the legal structure7 of my business?

18. What taxes8 will I need to pay?

19. What kind of insurance9 will I need?

20. Have I reached out to potential customers for feedback?

Tips

It is very important to validate your business ideas before you invest significant time, money and resources into it.

• The more questions you ask yourself, the more prepared you will be to handle to highs and lows of starting an enterprise.

Footnotes:

1. A mentor is a trusted and experienced person who is willing to coach and guide you.

2. A customer is someone who buys goods and/or services.

3. A competitor is a person or company that sells products and/or services similar to your products and/or services.

4. SWOT stands for Strengths, Weaknesses, Opportunities and Threats. To conduct a SWOT analysis of your company, you need to list down all the strengths and weaknesses of your company, the opportunities that are present for your company and the threats faced by your company.

5. A minimum viable product is a product that has the fewest possible features, that can be sold to customers, for the purpose of getting feedback from customers on the product.

6. A company is said to break even when the profits of the company are equal to the costs.

7. The legal structure could be a sole proprietorship, partnership or limited liability partnership.

8. There are two types of taxes - direct taxes payable by a person or a company, or indirect taxes charged on goods and/or services.

9. There are two types of insurance - life insurance and general insurance. Life insurance covers human life while general insurance covers assets like animals, goods, cars etc.

Glossary required for mason tiling job roles

Unit Objectives 🎯

At the end of this unit, you will be able to:

1.   Glossary of terms required during mason tiling work.

Glossary

Adhesive: A powdery substance mixed with water and sand, use for fixing the tiles.

Caulk (caulking): Sealing material, the process of sealing cracks around doors, windows and other cracks with a caulking gun.

Epoxy mortar: Mortar of thermosetting resins containing epoxy groups that are blended with other chemicals to form strong, hard chemically resistant mortar.

Grout: A cementitious component of high water-cement ratio, permitting it to be poured into spaces within a masonry wall. Grout consists of Portland cement, lime and aggregate.

Grout Float: A grout float quickly and easily pick up grout and apply it to a tiled surface.

Grouting Spreader: A grout spreader is used to spread the grout across the tiles and into the spaces between them.

Level: A tool for determining, or adjusting a surface to an even horizontal plane.

Mason: One who builds or works with stone or brick.

Occupational safety and health administration: A department of Labor to promulgate health and safety. Establishes regulations and enforces such.

Plumb: Exactly vertical. Measured with a plumb line.

Point: Tip of the trowel blade.

Porous: Materials ability to absorb water having many small openings.

Portland cement: Fine, grayish powder formed by burning limestone, clay or shale and then griding the resulting clinkers. The result is cement which hardens under water and which is used as a base for all mortar. Portland cement is a grade of cement, not a brand.

Sealant: Silicone, polyurethane or polysulphate based chemicals with elastomeric (elastic) characteristics used at various conditions in stone joints.

Spacers: Tile spacers are small pieces of plastic or rubber that allows you to achieve consistent spacing between tiles.

Steel rule: Use to scribe or draw a straight line

Stone: Term used to discuss rock in a semi or finished form to be used in constructions or landscaping.

Tape rule: It is use to measurement and marking of tiles.

Terra cotta: Hard semi-fired waterproof ceramic clay used in pottery and building construction.

Tiles: A tile is a hard-wearing material such as ceramic, stone, metal or even glass, generally used for covering roofs, floors, walls, showers, or other objects such as tabletops.

Tile Cutter: A tile cutter cuts large numbers of tiles in straight lines.

Tile edge trims: Tile edging trim are trims that can be used to provide a good finish to the exposed edges of tiles.

Tile Trowel: A tile trowel applies adhesive, when large amounts of tiling are to be done.

Trowel: A flat-bladed hand tool for leveling, spreading, or shaping substances such as cement or mortar.

Wet saw: A wet cutting diamond blade. Used on a saw that has a continual water pump supply on the blade keeping the blade clean and cool.

Notes