Teacher/Instructor: Mrs.P.M.Prasuna

Associate Professor

Department of Computer Science and Engineering

Lesson Plan for a Day
Term/Semester/Year: Sem- I - Syllabus 2020-21

MICRO LESSON PLAN

(ACCORDING TO BLOOMS DIGITAL TAXONOMY)

Programme	B Tech – R19 2020-21
Semester	I Year - II Semester
Subject Title	Data Structures
Subject Code	ES2106
Class Hours	7 hours per week
Total Hours	79 - Classes
Credits	3
Max Marks	100
Unit & Title	Unit 2 – Introduction to Single Linked List
Teaching and Learning Tools	Blended Learning, Google classrooms, Smart Board, Pedagogy, E-material, Activity and cross word Puzzle for **Post Task**

Detailed -Lesson-1 **Introduction to Linked List** **Lesson Objectives**	
Factual	Students will be able to understand what a single Linked list is.
Conceptual	Students will be able to differentiate the arrays and single linked list.
Procedural	Students will be able to build single linked list for given elements.
Applied	Students will be able to apply the logic to develop code to implement single list

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Micro Lesson Plan: Day-1. INTRODUCTION

1. **Pre-task Activity**- Explain the students the disadvantages and limitations of Arrays.
   In pre-task, students are asked to find out the limitations of arrays by trying to store different number of elements in the array.

2. **In-class Activity**: "Introduction to Linked List"

   Keywords to remember: Linked List, Dynamic Memory Allocation, Node, Self-referential structure.

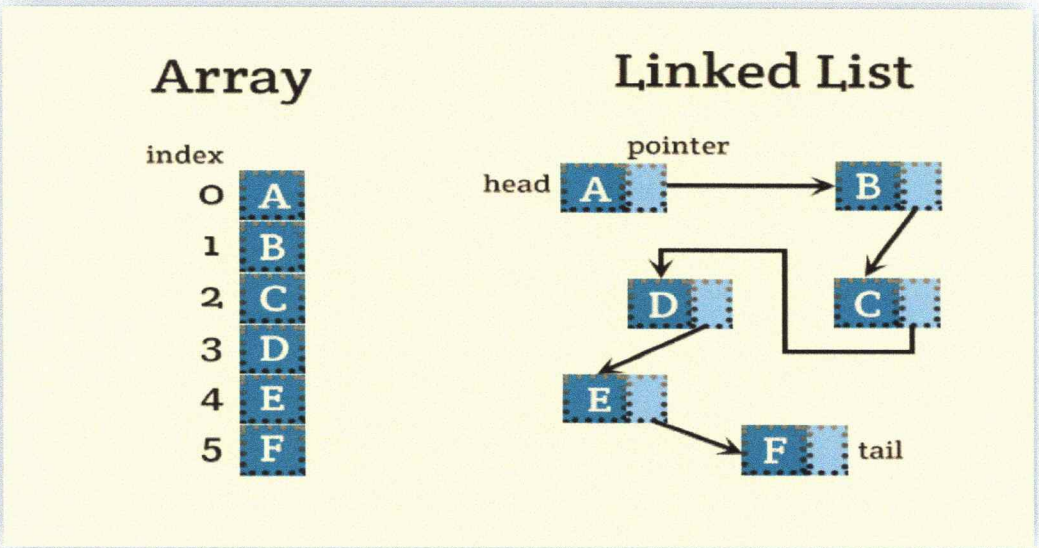

Fig 1. Difference between Arrays and linked list

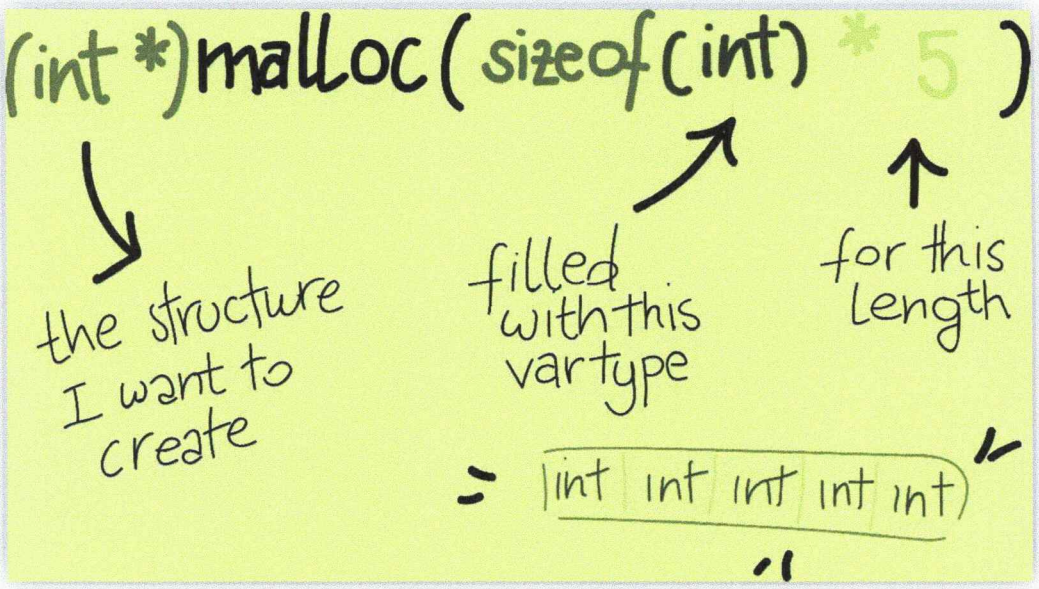

Fig 2. Dynamic Memory Allocation

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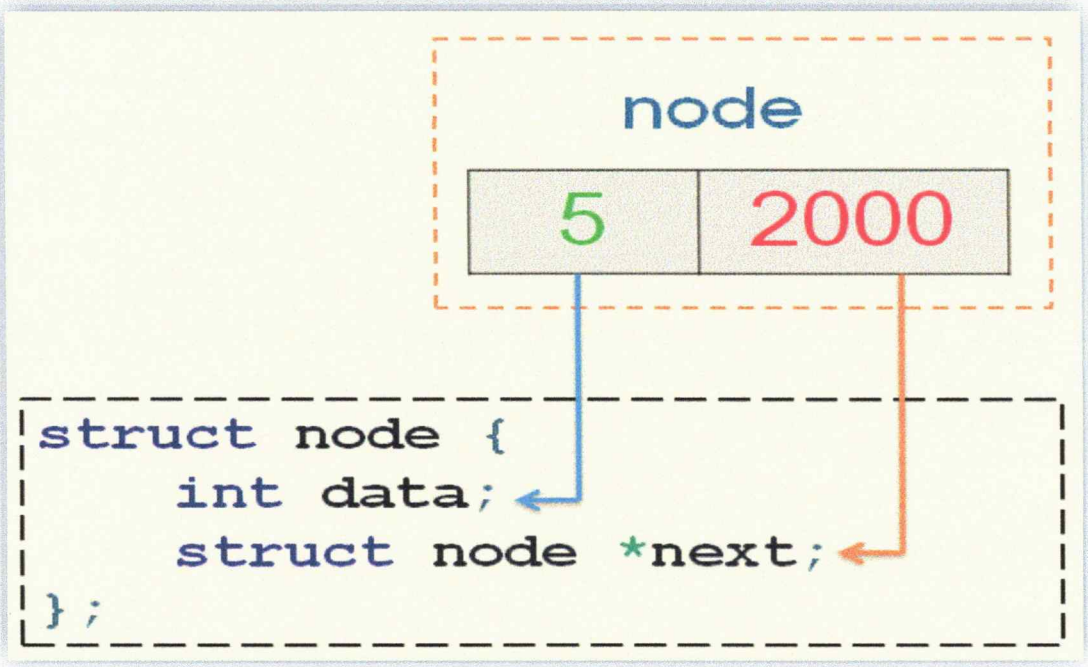

Fig 3. Self-referential Structure list

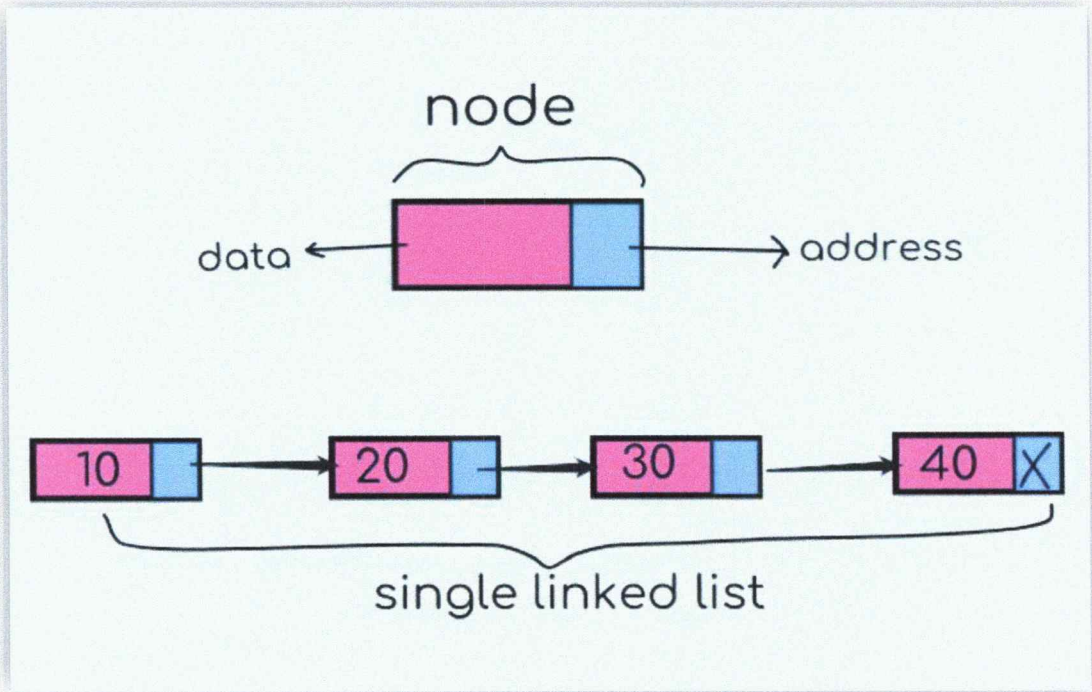

Fig 4. Single linked List

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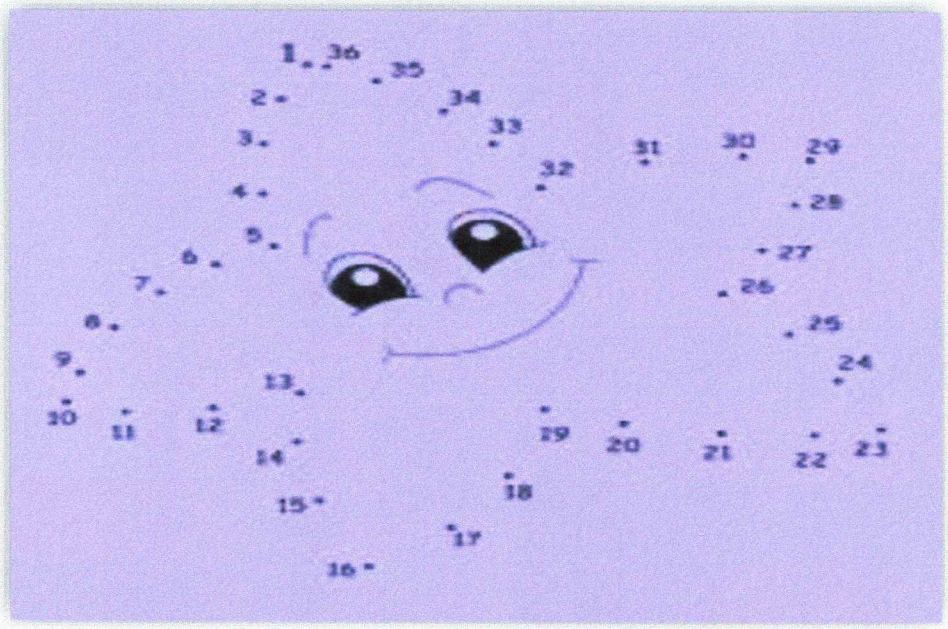
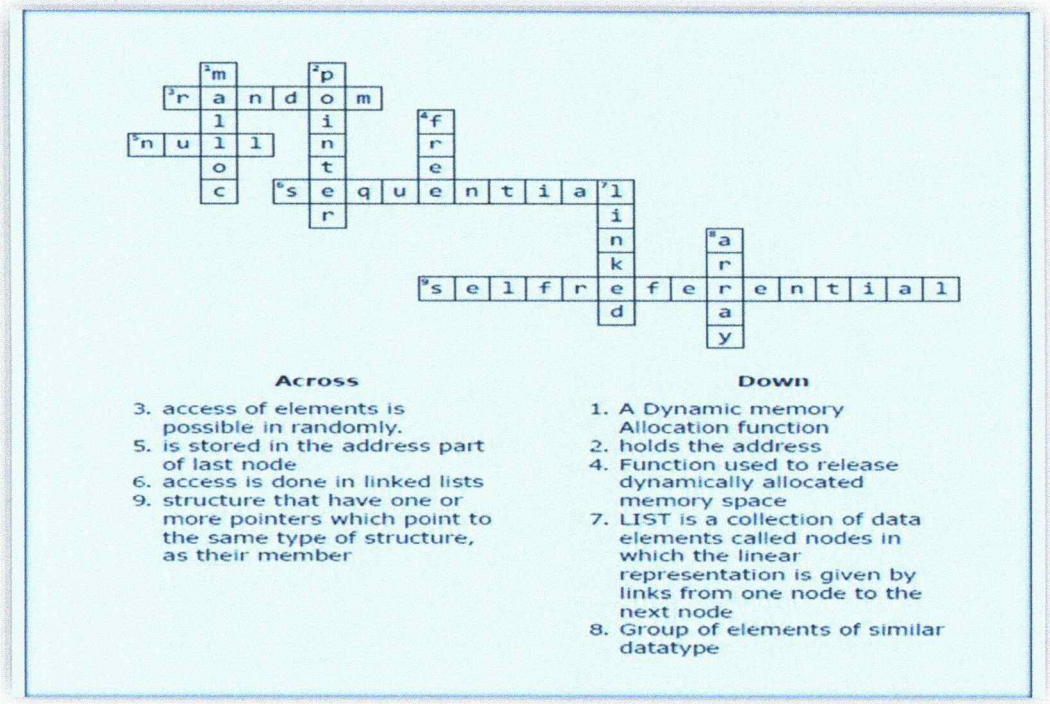
3. Post – task Activity:

Activity 1: Students are asked to connect the dots to know how nodes are connected in Single linked list.



Activity 2: Students are asked to complete the cross-word puzzle to recollect theimportant terms they learnt in the class.



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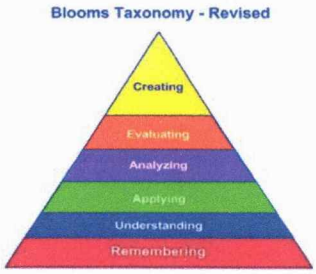

Taxonomy of Objectives – Specific Objectives

Knowledge Dimension	The Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
A. Factual Knowledge	SO-1,2	SO, -1,2,3	SO-1,2,3			
B. Conceptual Knowledge	SO- 1,2	SO-1,2,3	SO-1,2,3			
C. Procedural Knowledge	SO, -1,2	SO- 1,2,3	SO-1,2,3			
D. Meta Cognitive Knowledge						

4. Discussion

- Students will be able to explore the limitations of the arrays.
- They will understand the advantages of Linked List over Arrays.
- They will be able to apply the dynamic memory allocation concept in building linked list.
- They will be able to understand the use of self-referential structures and arrangement of nodes in single linked list.

5. Summary

- We have studied that an array is a linear collection of data elements in which the elements are stored in consecutive memory locations.
- While declaring arrays, we have to specify the size of the array, which will restrict the number of elements that the array can store.
- So, there must be a data structure that removes the restrictions on the maximum number of elements and the storage condition to write efficient programs.

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- Linked list is a data structure that is free from the aforementioned restrictions.
- A linked list, in simple terms, is a linear collection of data elements.
- These data elements are called nodes.
- Linked list is a data structure which in turn can be used to implement other data structures.
- Thus, it acts as a building block to implement data structures such as stacks, queues, and their variations.
-
- A linked list can be perceived as a train or a sequence of nodes in which each node contains one or more data fields and a pointer to the next node.
- In a linked list , every node contains two parts, an integer and a pointer to the next node.
- The left part of the node which contains data may include a simple data type, an array, or a structure.
- The right part of the node contains a pointer to the next node (or address of the next node in sequence).
- The last node will have no next node connected to it, so it will store a special value called NULL.
- Hence, a NULL pointer denotes the end of the list.
- Since in a linked list, every node contains a pointer to another node which is of the same type, it is also called a self-referential data type.
- Linked lists contain a pointer variable START that stores the address of the first node in the list.
- We can traverse the entire list using START which contains the address of the first node; the next part of the first node in turn stores the address of its succeeding node.
- Using this technique, the individual nodes of the list will form a chain of nodes.
- If START = NULL, then the linked list is empty and contains no nodes.
- In C, we can implement a linked list using the following code:

```
struct node
{
    int data;
    struct node *next;
};
```

References

1) Fundamentals of Data Structures in C, 2nd Edition, Horowitz, Sahni, Universities Press.
2) Data Structures: A PseudoCode Approach, 2/e, Richard F.Gilberg, Behrouz A. Forouzon, Cengage.
3) Data Structures with C, Seymour Lipschutz TMH

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Teacher/Instructor: Mr. Pranob K Charles
Department of Electronics & Communication Engineering
Assistant Professor of ECE

Lesson Plan for a Day
Term/Semester/Year: Sem- I - Syllabus 2019 -20

MICRO LESSON PLAN

(ACCORDING TO BLOOMS DIGITAL TAXONOMY)

Programme	B Tech – R 2019-20
Semester	III Year - I Semester
Subject Title	COMPUTER ARCHITECTURE & ORGANIZATION
Subject Code	R1631041
Class Hours	5 hours per week
Total Hours	60
Credits	3
Max Marks	100
Unit & Title	Unit 1 – Basic Structure of Computers
Teaching and Learning Tools	Black Board/ Power Point Presentation/Videos, E-material

Detailed – Lesson 1 Basic Structure of Computers **Lesson Objectives:**	
Factual	Students will be able to understand the fundamentals of computers and their existence.
Conceptual	Students will be able to Classify the different Computers based on Generationand their applications
Procedural	Students should be able to Analyze the characteristics of various different Computers, their functional units based on the type of work they perform.
Applied	Students should be able to find the solution to the problems with the help of pre-defined models and their appropriate applications.

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Prerequisite Knowledge: Block diagram of a Computer, functional units and applications of Computers.

Micro Lesson Plan: Day -11. Historical Development of Computers

1. **Pre-task Activity- Introducing the basic concepts, software and functional units and bus structures**

Video Link: https://www.youtube.com/watch?v=3osm-soT_Lc

2. **In-class Activity: Historical Development of Computers**

Key Words to Remember:
Functional Unit, Bus Structure, Operational Unit

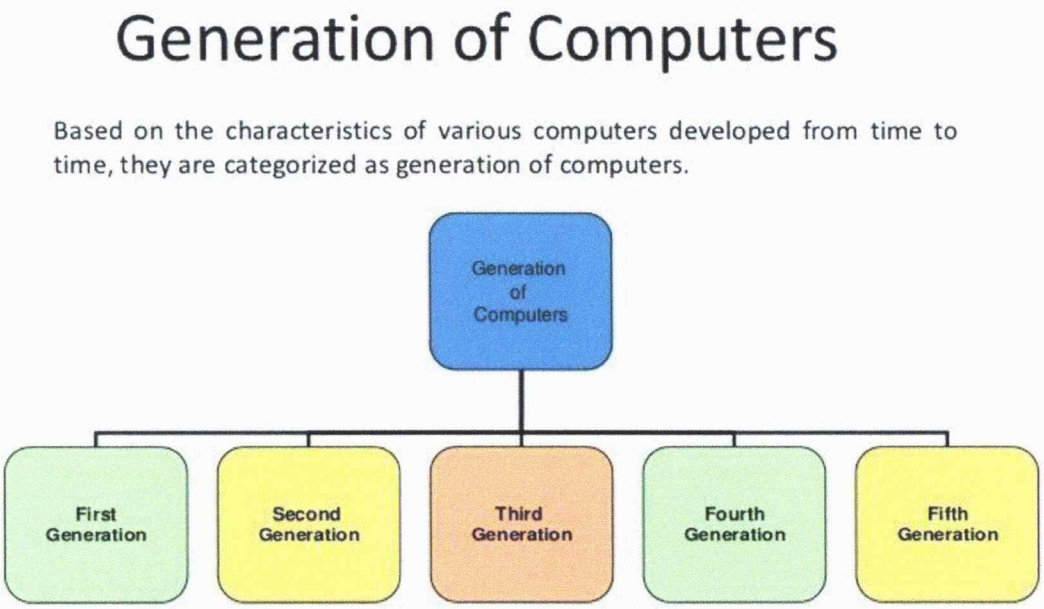

Fig .1 Generation of Computers

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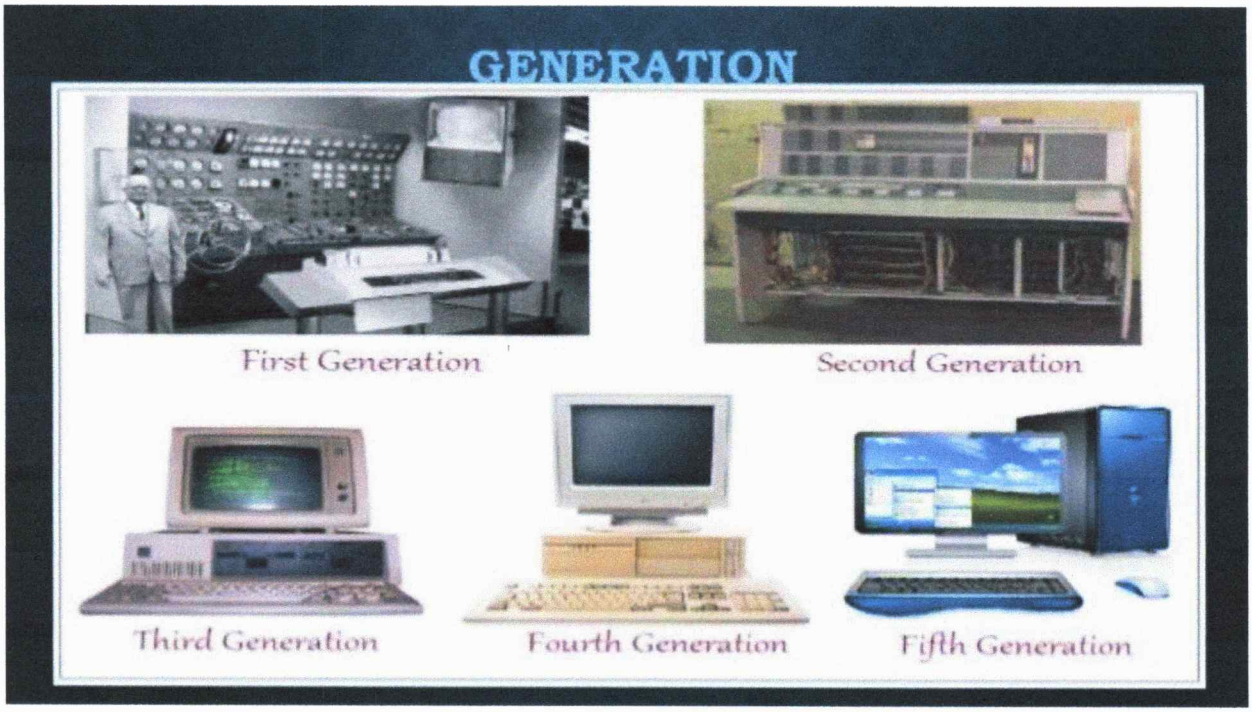

Fig.2 Systems related to various Generations

3. Post – task Activity:

In Post task activity revising the class, clarifying the doubts and asking **questions to know the response.**

Question 1:
1. When the Transistor Era has started in Computers?

a. First Generation b. Second Generation c. Third Generation d. Fourth Generation

Question 2:
2. When the IC Era has started in Computers?

a. First Generation b. Second Generation c. Third Generation d. Fourth Generatio

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4. Discussion

- Students will be able to remember and understand the various generations of the computer development.
- The pre-task activity material will give them a conceptual knowledge about the History of Computers.

5. Summary

- ENIAC was the world first successful electronic computer which was develops by the two scientists namely J. P. Eckert and J. W. Mauchy. It was the beginning of first-generation computer. ENIAC was a very huge and big computer and its weight was 30 tones. It could store only limited or small amount of information. Initially in the first-generation computer the concept of vacuum tubes was used.

- The second-generation computers where transistors were used as the electronic component instead of vaccum tubes. A transistors is much smaller in the size than that of a vaccum tube. As the size of electrons components decreased from vaccum tube of transistor, the size of computer also decreased and it became much smaller than that of earlier computer.

- The third-generation computers were invented in the year 1964. In this generation of computer, IC (Integrated circuits) was used as the electronic component for computers.

- This is the generation where we are working today. The computers which we see around us belong to the fourth-generation computers. 'Microprocessor' is the main concept behind this generation of computer.

- It is evident that the next generation of computer i.e. fifth generation are developed. In this generation, computer possess artificial intelligence and it would be able to take self-decisions like a human being.

6. References

1. Computer Organization, Carl Hamacher, Zvonks Vranesic, Safea Zaky, 5th Edition, McGraw Hill.
2. Computer Architecture and Organization , John P. Hayes ,3rd Edition, McGraw Hill.

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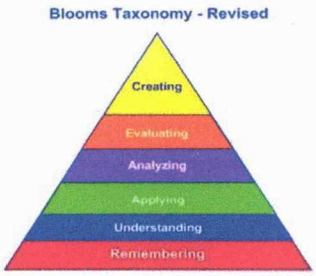

Taxonomy of Objectives – Specific Objectives

Knowledge Dimension	The Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
A. Factual Knowledge	SO -1	SO-1,2	SO-1,2			
B. Conceptual Knowledge	SO-1,2	SO- 1,2	SO-1,2			
C. Procedural Knowledge						
D. Meta Cognitive Knowledge						

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Teacher/Instructor: Syed Jakeer Hussain
Department of Civil Engineering
Assistant Professor

Lesson Plan for a Day
Term/Semester/Year: IV Sem - I - Syllabus 2019 -20

MICRO LESSON PLAN

(ACCORDING TO BLOOMS DIGITAL TAXONOMY)

Programme	B Tech – R 2019-20
Semester	IV Year - I Semester
Subject Title	Remote Sensing and GIS Applications
Subject Code	(R1641014)
Class Hours	5 hours per week
Total Hours	70
Credits	3
Max Marks	100
Unit & Title	Unit 1 – Introduction to Remote sensing.
Teaching and Learning Tools	Black board, power point presentation, videos, e – material, satellite images, topo sheets.

Detailed – Lesson 1 **Introduction to Remote sensing** **Lesson Objectives:**	
Factual	Reading Prerequisite concepts of Remote sensing and GIS applications.
Conceptual	Video Lectures related to of Remote sensing and GIS applications
Procedural	Refer to text book content and class notes
Applied	Solving Exercises Implementing Programs Assignments Quiz etc…

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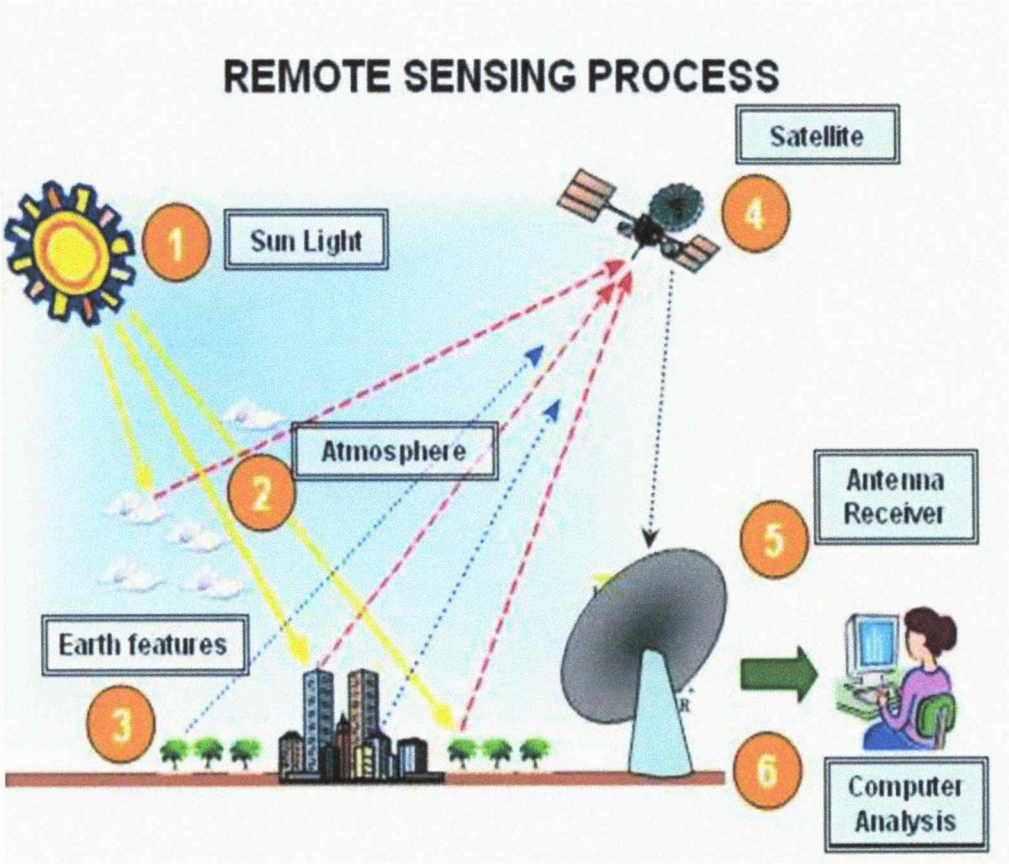
Prerequisite Knowledge: students must have knowledge of remote sensing.

Micro Lesson Plan: Day -1. INTRODUCTION

1. **Pre-task Activity- introduction to remote sensing**
   In pre task I planned to give introduction about remote sensing and basic definitions.
   Videos, E-books, Web links, Case Studies are provided
   Video link:
   https://www.youtube.com/watch?v=VfDAd-MO94o

2. **In class activity: explanation about remote sensing concept**
   Classification of remote sensing, remote sensing types, remote sensing platforms.



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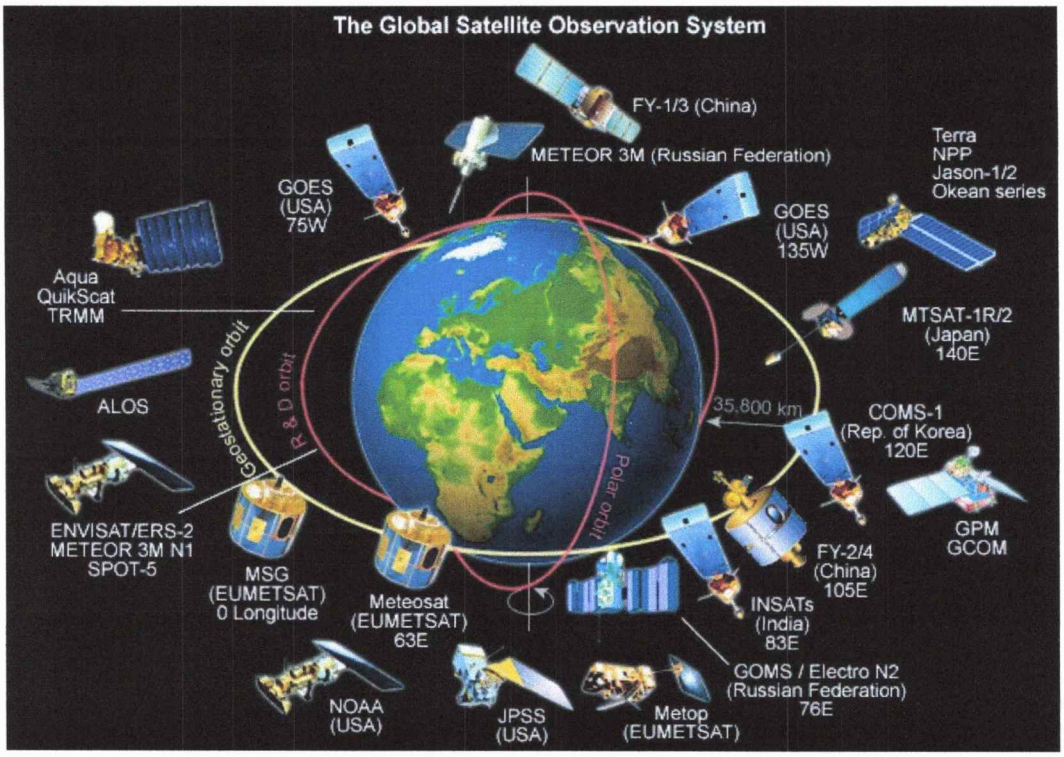

3. Post – task Activity:

In post-class activity revising the concepts, clarifying doubts regarding thesubject.

4. Discussion:

Students will be able to remember the remote sensing process based on real time applications.

5. Summary:

remote sensing describes collection of data about an object, area or phenomenon from distance with a device that is not in contact with an object.

The thematic information, extracted from the satellite data can be overlaid in GIS environment.

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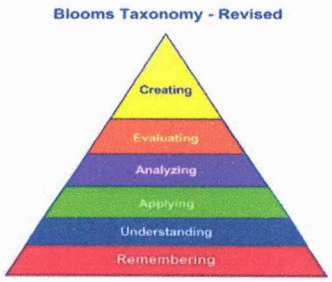

Taxonomy of Objectives – Specific Objectives

Knowledge Dimension	The Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
A. Factual Knowledge	SO- 1,2	SO-1,2,3	SO-1,2,3			
B. Conceptual Knowledge	SO-1,2,3	SO- 1,2,3	SO- 1,2,3			
C. Procedural Knowledge						
D. Meta Cognitive Knowledge						

6. References:

1. Fundamentals of Remote Sensing, George Joseph, Universities Press, 2013.
2. Concepts and Techniques of Geographical Information System, Chor Pang Lo and A K W Yeung, Prentice Hall (India), 2006
3. Remote Sensing and its Applications, Narayan LRA, Universities Press, 2012
4. Basics of Remote sensing & GIS, Kumar S, Laxmi Publications, New Delhi, 2005

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MICRO LESSON PLAN

A.Y. : 2020-2021 **Faculty: T. SUBBA REDDY**

Programme	B.TECH-MECHANICAL ENGINEERING
Semester	VIII
Subject Title	PRODUCTION PLANNING AND CONTROL
Code	R1642031
Hours	6 hours per week
Total Hours	63
Credits	3
Max Marks	100
Unit & Title	Unit-1: Introduction to PPC
T-L tools	Lecture method, Audio Visual aid: Discussing about basic concepts production planning and control and types by offline class teaching, video lectures, industrial examples.

Prerequisite Knowledge: Types of production

Micro planning:

1. Topic for Learning through evocation;

Video lecture-https://www.youtube.com/watch?v=2OBKUR5cjIM

2. Topic Introduction: Basic types of production systems, characterstics, advantages, disadvantages with applications

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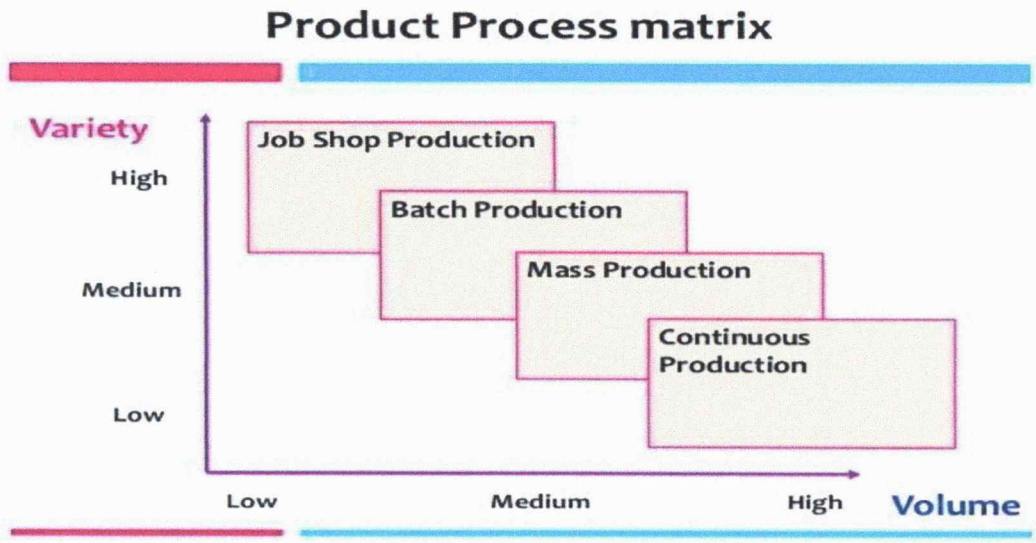

Taxonomy of Objectives

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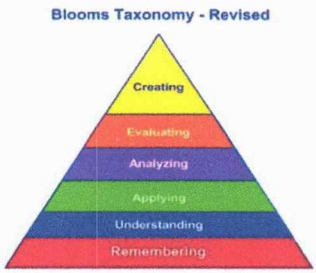

Taxonomy of Objectives – Specific Objectives

Knowledge Dimension	The Cognitive Process Dimension					
	Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
A. Factual Knowledge	**1,2**	**1,2,3**				
B. Conceptual Knowledge	**1,2,3**	**1,2,3**				
C. Procedural Knowledge						
D. Meta Cognitive Knowledge						

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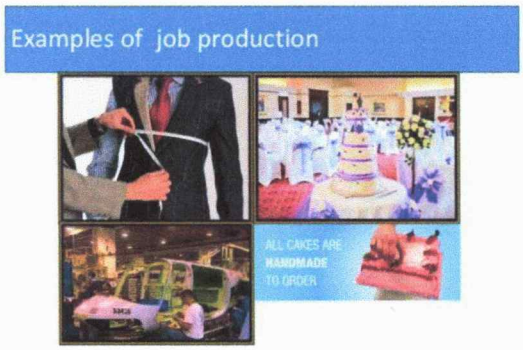
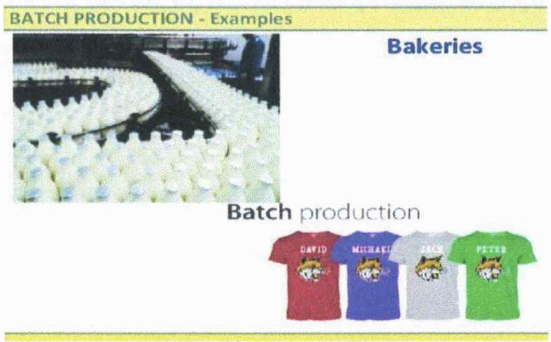
3. Discussion.

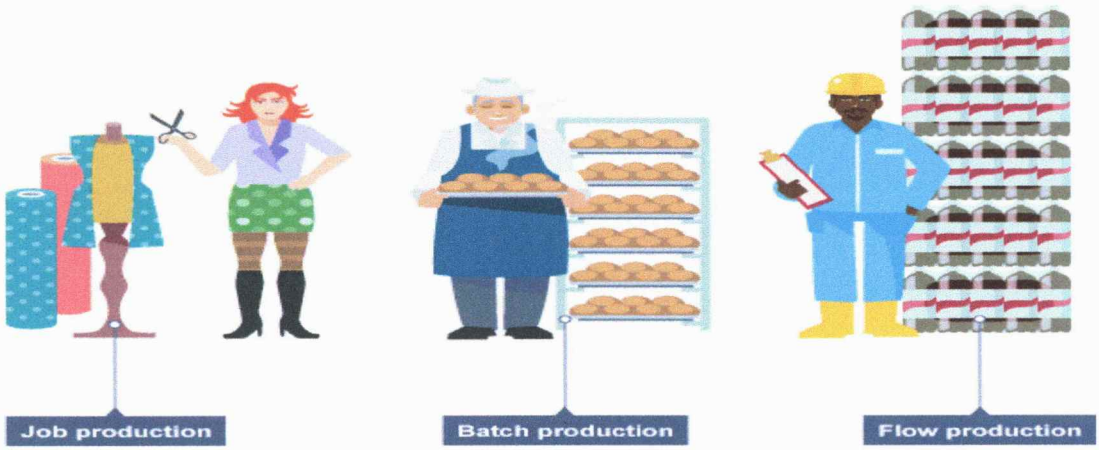
The students should understand the basic types of production systems with their characteristics and they enable to identify which system is better to the industry based on marketing conditions.

4. Summary. Production is an organized activity of converting raw materials into useful products, by organized utilization of natural resources, men, money, materials and machines. Whereas in the input. Conversion – output sequence, the smallest unit of productive activity, is termed as operation. Therefore, an operation is some step in the overall process of producing a product or service that heads to final output.

Production methods fall into three main categories: job (one-off production), batch (multiple items, one step at a time for all items), and flow (multiple items, all steps in process at once for separate items).







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5.FAQ's:

1. In which production system, items made individually?

a. Job b. batch c. mass d. continuous

2. "Highly skilled staff as have to make specialized one-off products" Is an advantage of which type of production method.

a. Job b. batch c. mass d. continuous

3. Which production method produces the most items?

a. Job b. batch c. mass d. continuous

6.References.

1.Industrial engineering and management by **Marthand Teleslang.**

2. Production and Operations management by **Pannerselvam.**

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Programme	B. TECH (MECHANICAL ENGINEERING)
Semester	I
Faculty Name	B. RAVI SHANKAR
Subject Title	MATHEMATICS-I
Code	R19BS1101 (A.Y.: 2019-2020)
Hours	7 hours per week
Total Hours	60
Credits	3
Max Marks	100
Unit & Title	Unit-2.1,2 Ordinary Differential Equations
T-L tools	Lecture method, Audio Visual aid: Discussing about basic concepts of derivatives and form the Differential equations by offline class teaching, video lectures, examples.

Prerequisite Knowledge:
Knowledge on some basic formulas like Derivatives and integration which are useful in finding the solutions of ordinary differential equations
Micro planning:
1.Topic for Learning through evocation;
Pre-Class: Videos, E-books, Web links etc…
Video Link : https://youtu.be/ClvFwUpi3ZA
Video Link : https://www.youtube.com/watch?v=QC3z-NUkOcE&list=PLociSetSILauNfkJkU0PzbFyBHohCI0rT&index=9
Web Link : https://nptel.ac.in/courses/111/108/111108081/

2.Topic Introduction: Basic concepts of derivatives and how to form the differential equation and finding the solution
of differential equation, types of differential equations and applications of differential equations.
3. General Objectives: In this course the students are introduced to some basic tools in Mathematics which are useful in modelling and analysing physical phenomena
Specific objectives:
1. Remember the definition of Linear Differential Equation
2. Apply the formula of exact and Non-Exact differential, integrating factor
Activity:

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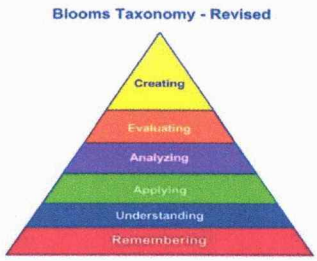
1	Factual	Reading Prerequisite concepts- Ordinary Differential Equations and Basic definitions, Videos related to Ordinary Differential Equations, Referring the content on the Internet
2	Conceptual	Video Lectures related to Ordinary Differential Equations NPTEL Videos Links from the Internet
3	Procedural	Refer to text book content and Understanding the Ordinary Differential Equations with examples (simple to complex)
4	Applied	Problems Solving and Applications solving by practice sessions and Assignments Quiz etc.…

Taxonomy of Objectives:



Taxonomy of Objectives – Specific Objectives

Knowledge Dimension	The Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
A. Factual Knowledge	SO-1	SO-1,2	SO-3			
B. Conceptual Knowledge	SO-1	SO-1,2	SO-3			
C. Procedural Knowledge						
D. Meta Cognitive Knowledge						

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Explanatory Notes: (This is not the notes for the topic. It is an explanatory note to remember the reason for doing a particular mapping in the table above)

A. Factual Knowledge: It is a knowledge that contains the basic elements students must know if they are to be acquainted with the discipline or to solve any of the problems in it.

B. Conceptual Knowledge: It includes knowledge of categories and types.

C. Procedural Knowledge: It is the knowledge that takes the solving differential equations and its applications to various Engineering fields.

D. Meta Cognitive Knowledge: It is the knowledge of one's own cognition.

Keywords: Linear, Bernoulli's, Exact and Non-Exact Differential Equations

Discussion: The students will be asked to discuss on the various formulae of derivatives and solve practical problems on the Differential Equations. The students those who have not taken part will be noted and kindled through giving Assignments for improving the problem-solving skills.

4.Summary:

- Form the Differential Equation of geometrical curves
- Solve the Linear Differential Equations
- Solve the Bernoulli's Differential Equations
- Solve the Exact Differential Equations
- Solve the Non-Exact Differential Equations

5. Assessment through Stimulating questions/New ideas and Concepts:

➢ To solve practical problems on Differential Equations.

➢ To solve practical problems and application problems.

6. FAQ'S:

1. An integrating factor of $(x^2y - 2xy^2)dx - (x^3 - 3x^2y)dy = 0$ is

(a) x^2y^2 (b) $2x^3y^5x^2y^2$ (c) $\frac{1}{x^2y^2}$ (d) $\frac{-1}{x^2y^2}$ [C]

2. **An integrating factor of $y\,logy\,dx + (x - logy)dy = 0$ is**

(a)$\mathbf{log}(logy)$ (b) $y\,logy$ (c) $-logy$ (d) $logy$ [D]

3. **The complete solution of $\frac{dy}{dx} + xy = x$ is**

a) $y = 1 + ce^{-x^2}$ (b) $y = 1 + ce^{x^2/2}$ (c) $y = 1 + ce^{-x^2/2}$ (d) $y = ce^{-x^2/2}$ [C]

7.TEXT/REFERENCE/ADDITIONAL BOOKS:

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T/R	**BOOK TITLE/AUTHORS/PUBLICATION**
T	**B. S. Grewal, Higher Engineering Mathematics, 43rd Edition, Khanna Publishers.**
T	B. V. Ramana, Higher Engineering Mathematics, 2007 Edition, Tata Mc. Graw Hill Education.
R	Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, Wiley-India.
R	Joel Hass, Christopher Heil and Maurice D. Weir, Thomas calculus, 14th Edition, Pearson.
R	Lawrence Turyn, Advanced Engineering Mathematics, CRC Press, 2013.
R	Srimantha Pal, S C Bhunia, Engineering Mathematics, Oxford University Press.

WEB SOURCE REFERENCES: (Detailed Topic link)

W1	https://nptel.ac.in/courses/111/108/111108081/
W2	http://people.sju.edu/~rhall/DiffEq/
W3	www.math.uic.edu/~cslin/m220w07

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Teacher/Instructor: Mr.P.Sugandha Kumar
Department of Science &Humanities
Assistant Professor of Chemistry

Lesson Plan for a Day
Term/Semester/Year: I Sem- II - Syllabus 2019 -20

MICRO LESSON PLAN

(ACCORDING TO BLOOMS DIGITAL TAXONOMY)

Programme	B Tech – R 2019-20
Semester	I Year - II Semester
Subject Title	ENGINEERING CHEMISTRY
Subject Code	(R19BS1210)
Class Hours	5 hours per week
Total Hours	60
Credits	3
Max Marks	100
Unit & Title	Unit 5 – WATER TECHNOLOGY
Teaching and Learning Tools	Blended Learning, Google classrooms, Smart Board, Pedagogy ,E-material , Video clips for **Post Task**

Detailed – Lesson **Water Technology** **Lesson Objectives:**	
Factual	Through this detailed Lesson '**Water Technology**' students will able to explain the importance and usage of water as basic material in almost all the industries.
Conceptual	Students should be able to learn suitable methods for treatment of hard water and brackish water.
Procedural	Students should be able to know potable water and its specifications, steps involved in purification of water.
Applied	Interpret the drawbacks of steam boilers.

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Prerequisite Knowledge:

Hard water, Soft water, Hardness of water, Temporary hardness, Permanent hardness and Chemical formula of salts

Micro Lesson Plan: Day -1. Boiler troubles

1. Pre-task Activity- Introduction to Boiler

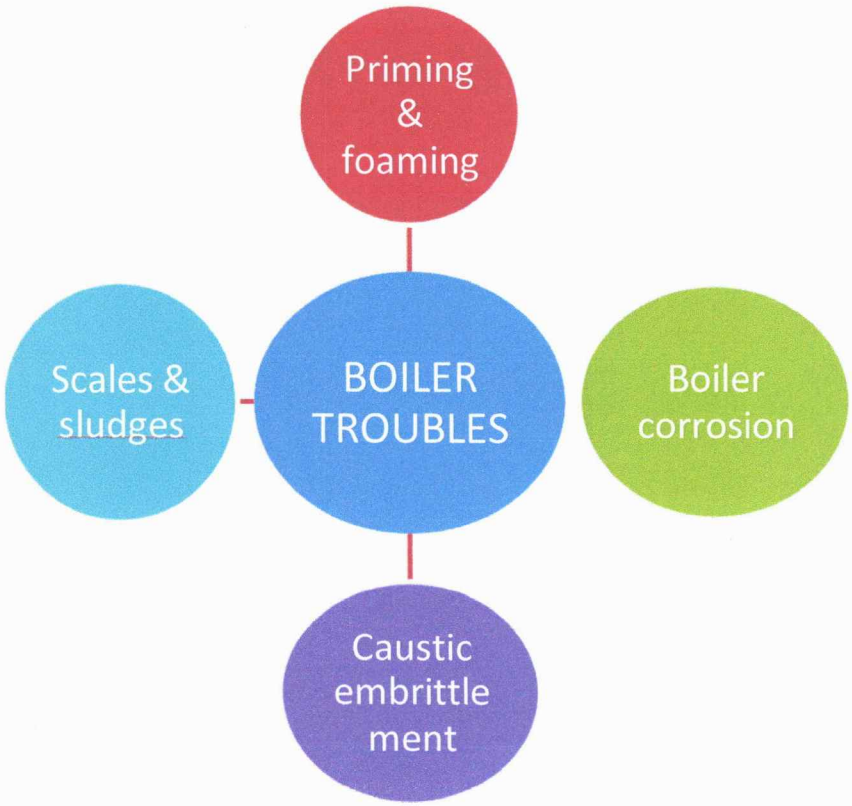
In pre-task, I have planned to give introduction about the boiler and recall the basic definitions of hardness of water and chemical formula of salts.

The salts responsible for temporary hardness are $Ca(HCO_3)_2$, $Mg(HCO_3)_2$.

The salts responsible for permanent hardness are $CaCl_2$, $MgCl_2$, $CaSO_4$, $MgSO_4$, $Ca(NO_3)_2$, $Mg(NO_3)_2$ etc.

Video Link: https://youtu.be/is5wdVgPOkI

2. In-class Activity: Boiler troubles



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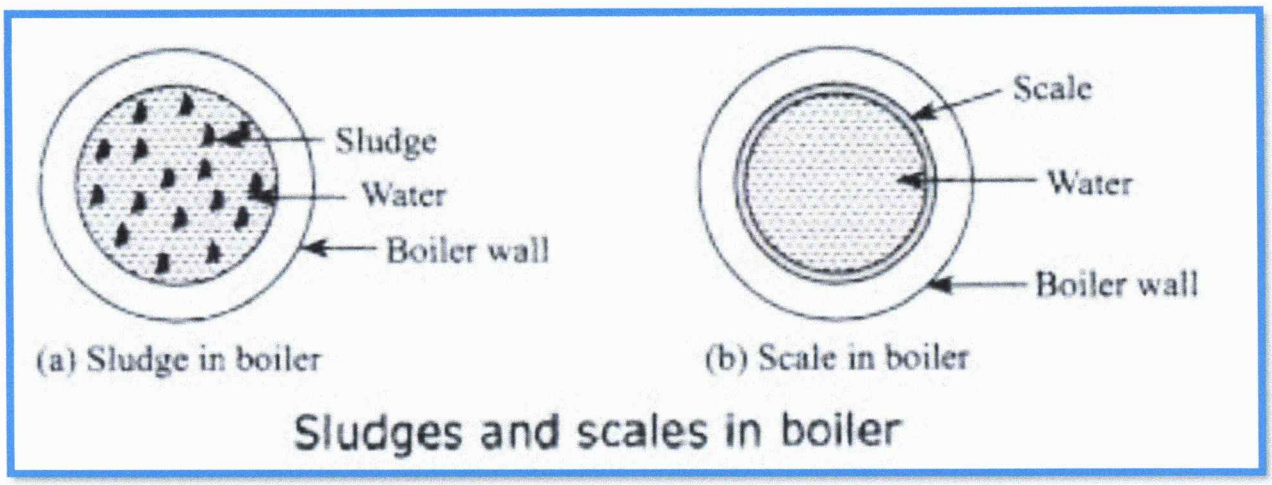
S.No	Requirements for boiler water	If not, it will cause
1	Free from hardness causing salts	Sludge and scale
2	Free from oil and greases	Foaming
3	Free from dissolved salts, suspended impurities	Caustic embrittlement
4	Free from dissolved gases, suspended salts	Boiler corrosion

Scale and Sludge formation in boilers:



Decomposition of calcium bicarbonate:

$$Ca(HCO_3)_2 \rightarrow CaCO_3\downarrow + H_2O + CO_2$$

Hydrolysis of Magnesium salts:

$$MgCl_2 + 2H_2O \rightarrow Mg(OH)_2\downarrow + 2HCl$$

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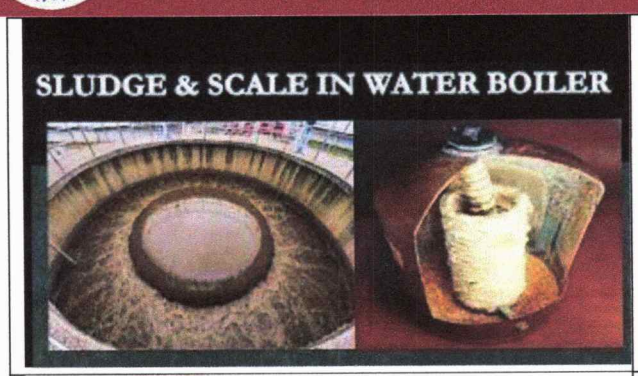

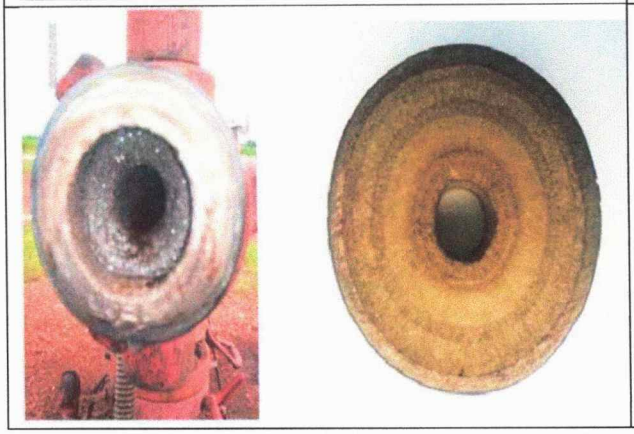

Water appliances showing scale deposition to varying extents

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Prevention of scales formation:

Phosphate conditioning: In high pressure boilers scale formation can be avoided by adding sodium phosphate, which reacts with hardness of water forming non- adherent and easily removable soft sludge of calcium and magnesium phosphate.

$$3CaCl_2 + 2Na_3PO_4 \rightarrow Ca_3(PO4)_2 \downarrow + 6NaCl$$

Carbonate conditioning: In low pressure boilers, scale formation can be avoided by adding sodium carbonate to boiler water.

$$CaSO_4 + Na_2CO_3 \rightarrow CaCO_3 + Na_2SO_4$$

Treatment with sodium aluminate ($NaAlO_2$) : Sodium aluminate gets hydrolysed yielding NaOH and a gelatinous ppt of aluminium hydroxide.

$$NaAlO_2 + 2H_2O \rightarrow NaOH + Al(OH)_3(\text{gelatinous ppt})$$

The sodium hydroxide so formed precipitates some of the magnesium as $Mg(OH)_2$

$$MgCl_2 + 2NaOH \rightarrow Mg(OH)_2\downarrow + 2NaCl$$

Calgon conditioning:
Calgon is the trade name of sodium hexa meta phosphate- $Na_2[Na_4(PO_3)_6]$. With calcium ions it forms a soluble complex and prevents scale and sludge formation. It is used for high and low pressure boilers.

$$2CaSO_4 + Na_2[Na_4(PO_3)_6] \rightarrow Na_2[Ca_2(PO_3)_6] + 2Na_2SO_4$$

3. Post – task Activity:

In Post task activity revising the class and clarifying the doubts.
Discussion on disadvantages of hard water in domestic purposes.

4. Discussion

- Students will be able to know disadvantages of hard water in both domestic and industrial purposes.

5. Summary

Excess of impurities if present in boiler feed water generally cause the following problems.

1. Priming and Foaming. 2. Scale and Sludge formation. 3. Caustic embrittlement. 4.Boiler corrosion.

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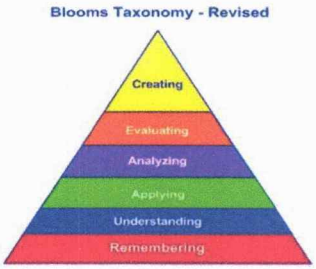
In boilers, water evaporates continuously and the concentration of the dissolved salts increases progressively. When their concentration reach saturation point they are thrown out of water in the form of precipitates on the inner walls of boiler.

If the precipitation takes place in the form of loose and slimy precipitate it is called **Sludge.** On the other hand if the precipitated matter forms a hard adhering coating on the inner walls called **Scale**.

6. References

P.C. Jain and M. Jain "Engineering Chemistry", 15/e, Dhanpat Rai & Sons, Delhi, (Latest edition).

Shikha Agarwal, "Engineering Chemistry", Cambridge University Press, New Delhi, (2019).



Taxonomy of Objectives – Specific Objectives

Knowledge Dimension	The Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
A. Factual Knowledge	SO-1	SO- 2	SO-1,2			
B. Conceptual Knowledge	SO-1	SO-2	SO-1,2			
C. Procedural Knowledge						
D. Meta Cognitive Knowledge						

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Teacher/Instructor: Y.Sudhakar
Department of Science &Humanities
Assistant Professor of Physics

Lesson Plan for a Day
Term/Semester/Year: Sem- I - Syllabus 2019 -20

MICRO LESSON PLAN

(ACCORDING TO BLOOMS DIGITAL TAXONOMY)

Programme	B Tech – R 2019-20
Semester	I Year - II Semester
Subject Title	APPLIED PHYSICS
Subject Code	(BS1204)
Class Hours	6 - Hours Per Week
Total Hours	90
Credits	3
Max Marks	100
Unit & Title	Unit 1 – WAVE OPTICS
Teaching and Learning Tools	Blended Learning, Google classrooms, Smart Board, E-material , Video clips for **Post Task**

Detailed – Lesson 1 WAVE OPTICS **Lesson Objectives:**	
Factual	Students are able to define basic concepts of light and propagation of light.
Conceptual	Students are able to understand principle of superposition of waves and different phenomenon's about wave nature of light.
Procedural	Students are able to apply series of mathematical techniques to derive formulas between the physical quantities.
Applied	Students are able to analyze the given numerical problems with their own knowledge for solutions.

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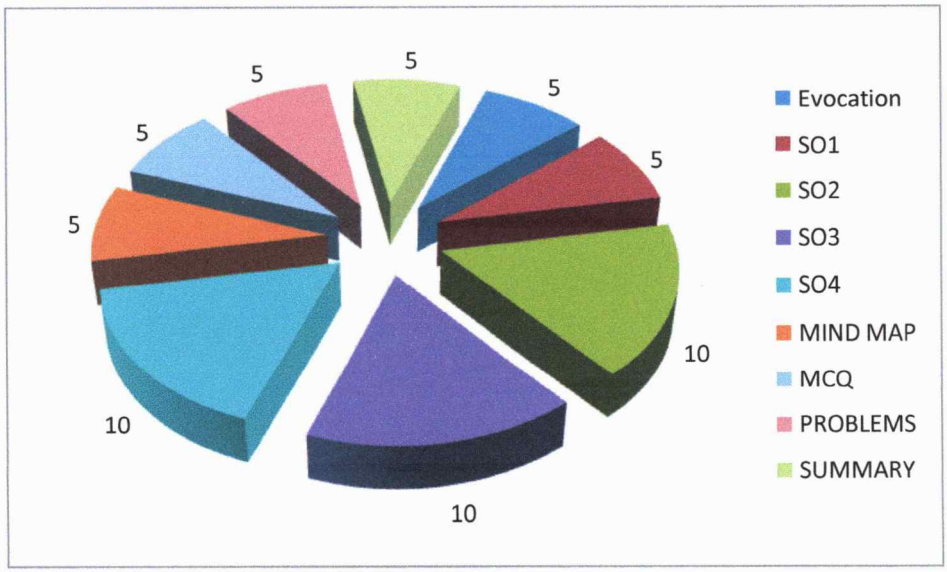
Micro Lesson Plan:



1. Topic for Learning - Basic properties of light.
Evocation: Learning through video/simple diagram/practical application

2. Topic Introduction:
2.1. General Objective:
Students will be able to understand the concepts of **"Interference of light, diffraction of light"**

2.2. Specific Objectives:
Students will be able to

1. Recall Phase difference and path difference.
2. Understand wave theory of light.
3. Classify the two phenomenon of light.
4. Apply Knowledge for design of signal towers.
5. Categorize the different sources of light and optical instruments.

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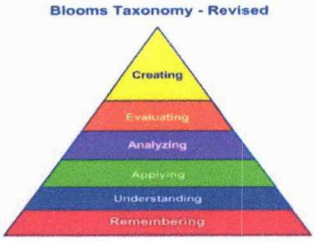

Taxonomy of Objectives – Specific Objective

Knowledge Dimension	The Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
A. Factual Knowledge	SO- 1					
B. Conceptual Knowledge		SO- 2,3				
C. Procedural Knowledge			SO- 4			
D. Meta Cognitive Knowledge				SO- 5		

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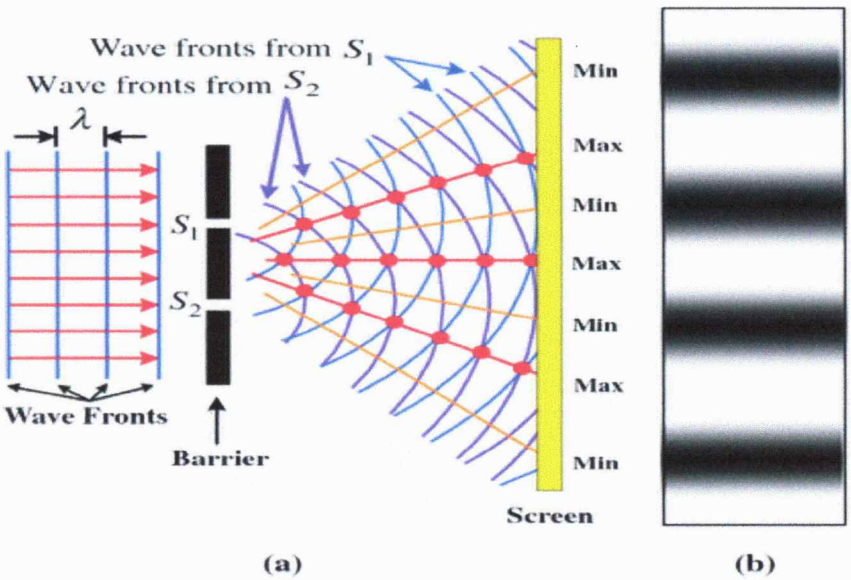
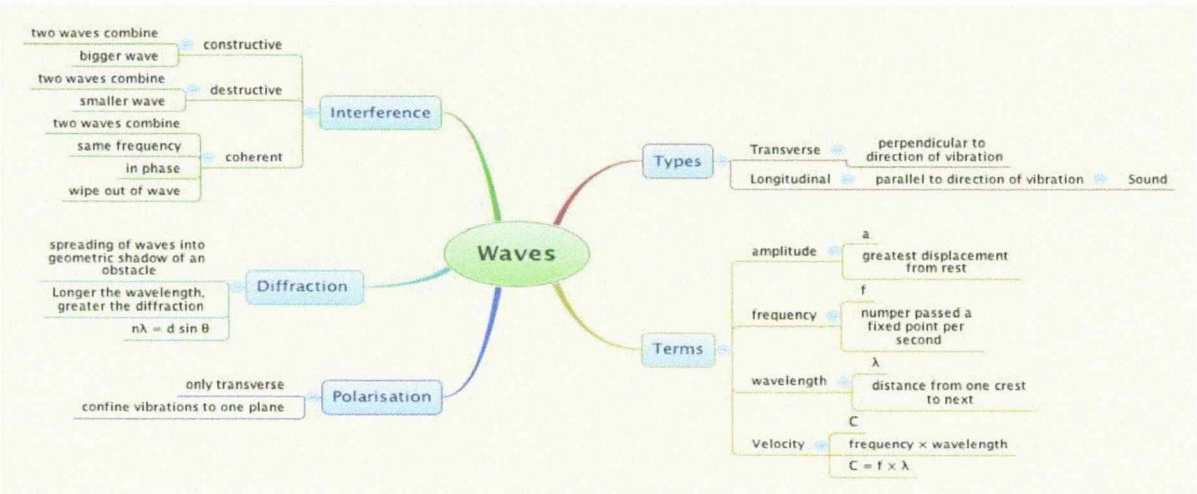
2.4. Key words: Phase, conditions for maxima and minima, wavelets and angle of resolution.

2.5. Key diagram:



(a) (b)

3. Mind Map:



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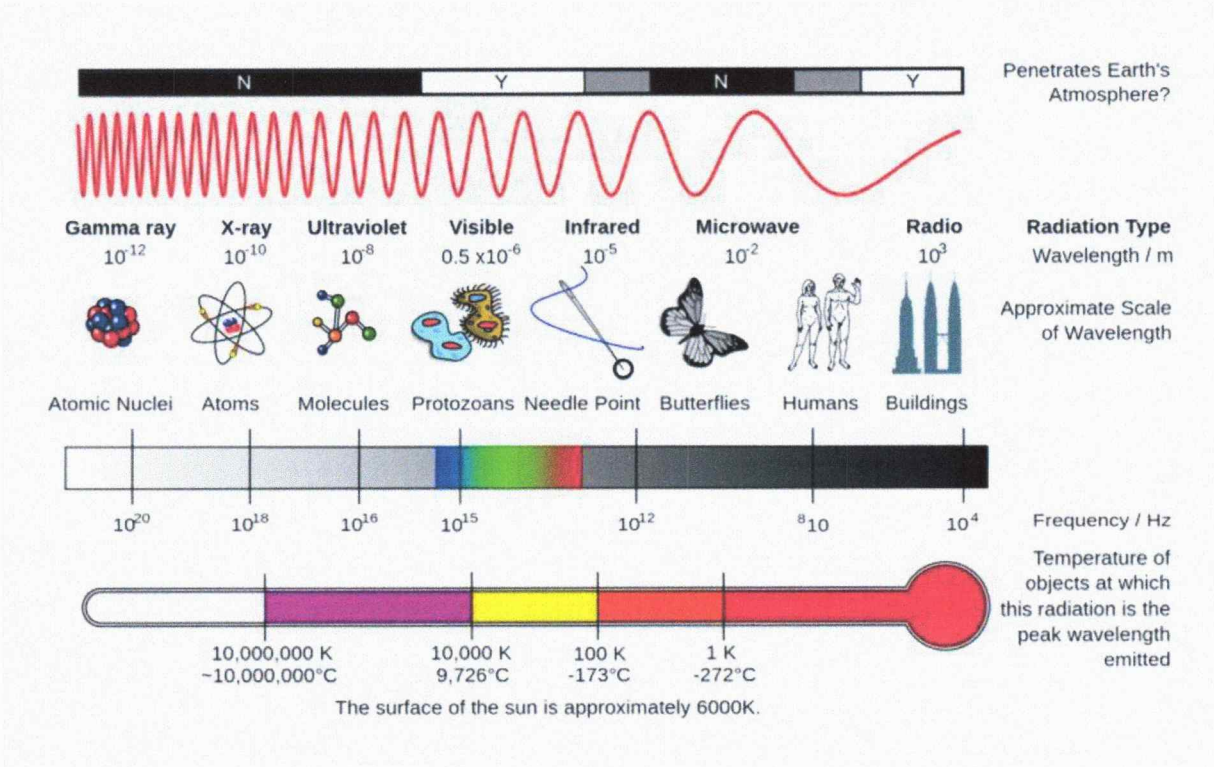

4. Summary:

1. The wave theory of light is strengthened by the interference and diffraction of light.
2. Huygens ' Principle: every point on a wave front is a source of spherical wavelets.
3. Two sources of light are coherent if they have the same frequency and maintain the same phase relationship.
4. Light bends around obstacles and openings in its path, yielding diffraction patterns.
5. Light passing through a narrow slit will produce a central bright maximum surrounded with alternate maxima and minima with varying intensities.
6. Resolving power of optical instruments depends on angle of resolution.

5. Assessment through Stimulating questions/Analogy/New ideas and Concepts:

1. Estimate the angular width of the central maximum of the diffraction pattern produced by a circular aperture 2.0 mm in diameter. Take $\lambda = 500$ nm.

A. 6.05 x10 4 radians
B. 5.05 x10 4 radians
C.3.05 x10 4 radians
D 4.05 x10 4 radians

2. In newtons rings experiment, interference occurs between the waves that come from

A. Upper surface of a Plane glass plate and upper surface of a convex lens
B. Lower surface of a Plane glass plate and upper surface of a convex lens
C. Upper surface of a convex lens and lower surface of a Plane glass plate
D. Lower surface of a convex lens and Upper surface of a Plane glass plate

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3. In the fraunhoffer diffraction of the N-slits, the grating equation is represented as

A. N Sin $\Theta = n\lambda$

B. n Sin $\Theta = N\lambda$

C. Sin $\Theta = Nn\lambda$

D d Sin $\Theta = Nn\lambda$

Activity: Show interference and diffraction of light patterns using single, double slit, monochromatic source, aperture and screen.

Text Books:

1) "A Text book of Engineering Physics" by M.N. Avadhanulu, P.G.Kshirsagar - S.Chand Publications, 2017.
2) "Engineering Physics" by D.K.Bhattacharya and Poonam Tandon, Oxford press (2015).
3) "Engineering Physics" by R.K Gaur. and S.L Gupta., - Dhanpat Rai publishers, 2012.

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Teacher/Instructor: Dr. V.V.Prabhakar Rao
Department of Science &Humanities
Assistant Professor of Environmental studies

Lesson Plan for a Day
Term/Semester/Year: Sem- I - Syllabus 2019 -20

MICRO LESSON PLAN

(ACCORDING TO BLOOMS DIGITAL TAXONOMY)

Programme	B Tech – R 2019-20
Semester	II Year - I Semester
Subject Title	ENVIRONMENTAL STUDIES
Subject Code	(MC2101)
Class Hours	4 hours per week
Total Hours	40
Credits	0
Max Marks	0
Unit & Title	Unit 1 - **Multidisciplinary nature of Environmental studies**
Teaching and Learning Tools	Black Board/ Power Point Presentation/Videos, E-material, Field visit.

Detailed – Lesson 1 **Multidisciplinary nature of Environmental studies** **Lesson Objectives:**	
Factual	Through this detailed Unit-1 '**Multidisciplinary nature of Environmental studies'** students will develop an overall understand about Multidisciplinary nature of Environment.
Conceptual	To understand the key concepts of Global warming, Climate change, acid rains, ozone layer depletion and Ecosystems.
Procedural	Students should be able learn about ecosystems and Global environmental challenges.
Applied	Apply the knowledge to protect ecosystem.

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Prerequisite Knowledge:

Basic knowledge on Environment, Global Environmental challenges and Ecosystems.

Micro Lesson Plan: Day -1. INTRODUCTION

1. **Pre-task Activity- Introducing about Environmental studies**

   In pre-task, i planned to give introduction about the Environmental studies and recall the basic terms.

   https://www.youtube.com/watch?v=syEjDlUdjPI

2. **In-class Activity: "Concepts on Global warming"**

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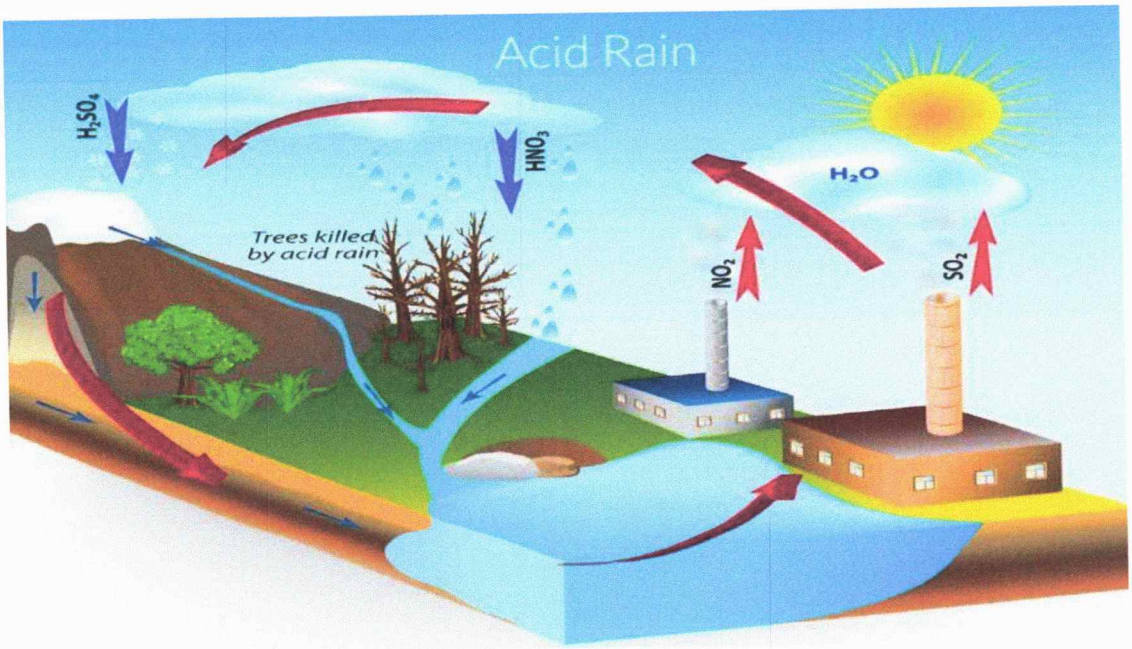
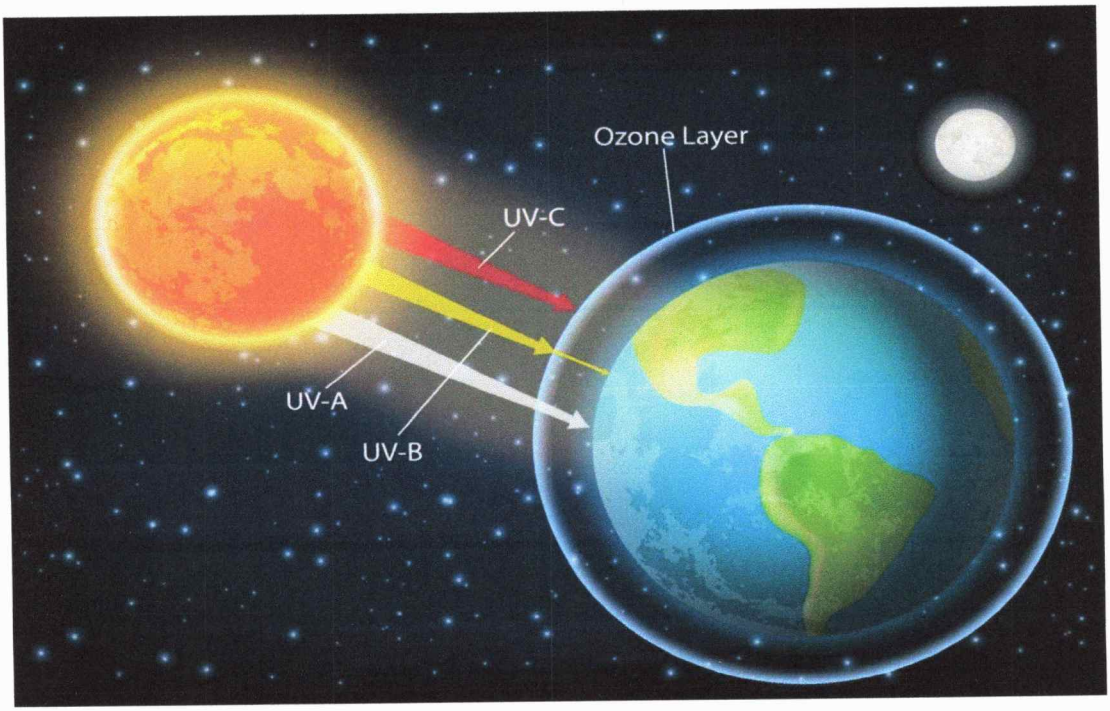
Concept on Acid rains"



"Concept on Ozone depletion"



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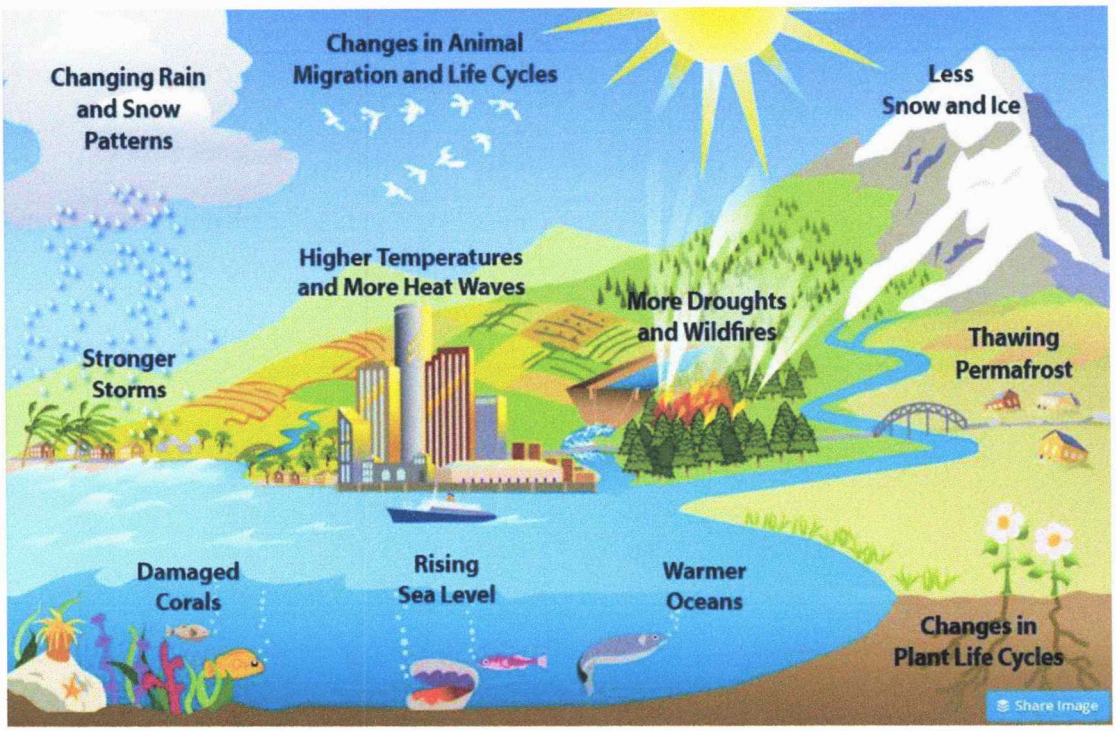
"Concept on Climate change"



3. Post – task Activity:

In Post task activity revising the class, clarifying the doubts and asking questions to know the response.

4. Discussion

Students understand the key concepts of Global warming, Climate change, acid rains, ozone layer depletion

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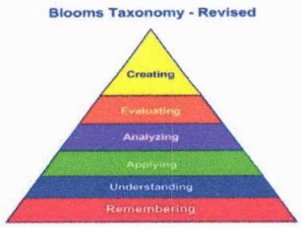
5. Text books

1. *Environmental Studies*, K. V. S. G. Murali Krishna, VGS Publishers, Vijayawada

2. *Environmental Studies*, R. Rajagopalan, 2nd Edition, 2011, Oxford University Press.

3. *Environmental Studies*, P. N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chenna



Taxonomy of Objectives – Specific Objective

The Cognitive Process Dimension					
Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
SO- 1					
	SO- 2,3				

6. References

1. *Text Book of Environmental Studies*, Deeshita Dave & P. Udaya Bhaskar, Cengage Learning.

2. *A Textbook of Environmental Studies*, Shaashi Chawla, TMH, New Delhi

3. *Environmental Studies*, Benny Joseph, Tata McGraw Hill Co, New Delhi

4. *Perspectives in Environment Studies*, Anubha Kaushik, C P Kaushik, New Age International Publishers.

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