GOVERNMENT DEGREE COLLEGE

Accredited with NAAC 'B' Grade

(Affiliated to Adikavi Nannaya University, Rajahmundry)

MANDAPETA -533308 Dr. B.R Ambedkar Konaseema (dist), Andhra Pradesh

INVITED LECTURE
BY

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Lecturer in Computer Applications
Departmet of Computer Applications
Government Degree College
Mandapeta

TOPIC: **FUNDAMENTALS OF COMPUTERS AND NUMBER SYSTEMS**

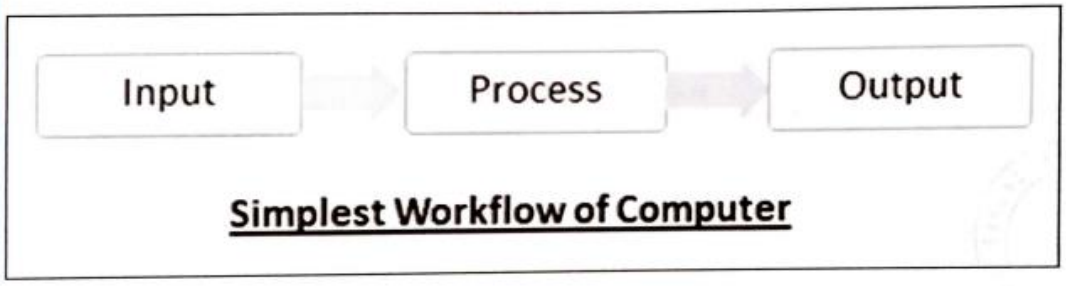
VENUE: **Government Degree College, Ravulapalem**
Dr. B.R. Ambedkar Konaseema Dist 533238

DATE: **08-09-2023**

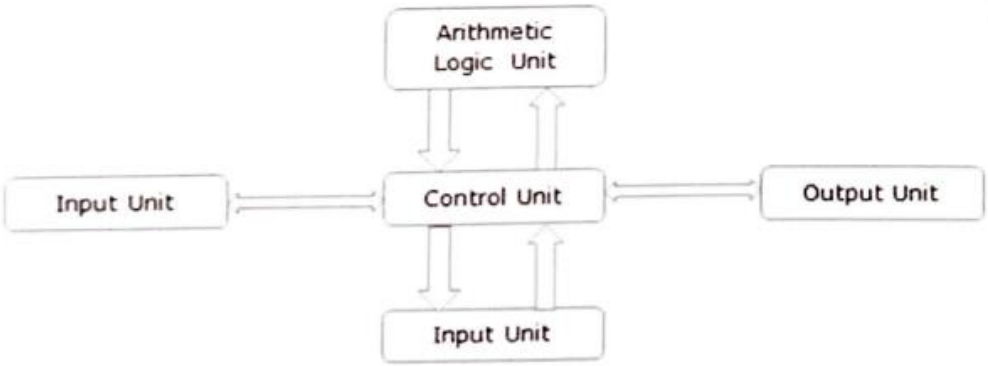
TIME: **10.00 AM TO 12.00 Noon**

Topic Synopsis

Basics of Computers - Introduction:



Simplest Workflow of Computer



Basics of Computers - Number System

The technique for representing and working with numbers is called **number system**.

The decimal **number system** is the most common number system.

Other popular number systems include

- **binary number system,**
- **octal number system,**
- **hexadecimal number system,** etc.

Decimal Number System

decimal number system is a **base 10** number system having 10 digits from 0 to 9. This means that any numerical quantity can be represented using these 10 digits.

Decimal number system is also a **positional value system**. This means that the value of digits will depend on their position. Let us take an example to understand this.

Say we have three numbers – 734, 971 and 207. The value of 7 in all three numbers is different–

- In 734, value of 7 is 7 hundreds or 700 or 7×100 or 7×10^2
- In 971, value of 7 is 7 tens or 70 or 7×10 or 7×10^1
- In 207, value 0f 7 is 7 units or 7 or 7×1 or 7×10^0

The weight of each position can be represented as follows –

10^5	10^4	10^3	10^2	10^1	10^0

In digital systems, instructions are given through electric signals; variation is done by varying the voltage of the signal. Having 10 different voltages to implement a decimal number system in digital equipment is difficult. So, a number of systems that are easier to implement digitally have been developed. Let's look at them in detail.

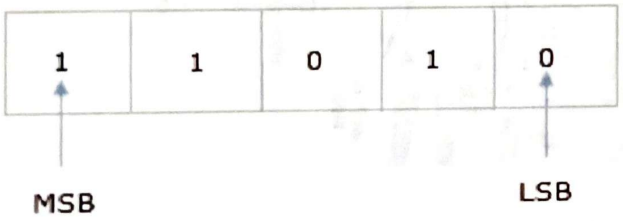
Binary Number System

The easiest way to vary instructions through electric signals is two-state system - on and off. On is represented as 1 and off as 0, though 0 is not actually a signal but a signal at a lower voltage. The number system having just these two digits - 0 and 1 - is called the **binary number system.**

Each binary digit is also called a **bit**. The binary number system is also a positional value system, where each digit has a value expressed in powers of 2, as displayed here.

2^5	2^4	2^3	2^2	2^1	2^0

In any binary number, the rightmost digit is called the **least significant bit (LSB)** and the leftmost digit is called **most significant bit (MSB).**



And decimal equivalent of this number is sum of product of each digit with its positional value.

$11010_2 = 1\times2^4 + 1\times2^3 + 0\times2^2 + 1\times2^1 + 0\times2^0$

$= 16 + 8 + 0 + 2 + 0$

$= 26_{10}$

Computer memory is measured in terms of how many bits it can store. Here is a chart for memory capacity conversion.

Octal number system has eight digits – 0, 1, 2, 3, 4, 5, 6 and 7. Octal number system is also a positional value system with where each digit has its value expressed in powers of 8, as shown here –

8^5	8^4	8^3	8^2	8^1	8^0

GOVERNMENT DEGREE COLLEGE, RAVULAPALEM

(Affiliated to Adikavi Nannaya University)
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E-Mail : jkvrlpm.ravulapalem@gmail.com, Phone : 08855-257061
ISO 50001:2011, ISO 14001:2015, ISO 9001:2015 Certified College

To
The Principal
Government Degree College, Mandapeta

Dt: 08-09-2023
Ravulapalem

Attendance Certificate

This is to certify that Sri K Sundara Rao, Lecturer in Computer Applications attended as Resource Person and delivered a Guest Lecture on " Fundamentals of Computers" in Digital class Room conducted by the Department of Computer Science & Applications, Government Degree College, Ravulapalem as a part of MoU with the college on 08-09-2023 from 10AM to 12PM.

Ravulapalem
Date: 08-09-2023

HoD
Department of Computer Science& Applications

LECTURER IN COMPUTER APPLICATIONS
GOVERNMENT DEGREE COLLEGE
RAVULAPALEM-533238

Principal
Government Degree College
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GOVERNMENT DEGREE COLLEGE RAVULAPALEM

GOVERNMENT DEGREE COLLEGE

NAAC Accredited with 'B'Grade

Mandapeta. East godavari District , AP.

DATE: 08--09-2023.

RELIEVING LETTER

This is to certify that Sri K. SUNDARA RAO, Lecturer in Computer Applications of this college is relieved of his duties on F.N. of 08 -09-2023 to attend the Guest Lecture at Government Degree College, Ravulapalem on 08-09-2023.

PRINCIPAL

Principal
Govt. Degree College
MANDAPETA-533 308

Students Attended List

S.No	Student Name	Class
1	[illegible]	[illegible]
2	M Teja Sowmya	1st BSc (computers)
3	T. Vimala	1st BSc (computers)
4	T Jyothi	1st BSc (computers)
5	M. Renuka	1st BSc (computers)
6	J. Rufa Sri	1st BSc (computers)
7	P. Hema Sai Durga	1st BSc (computers)
8	R. Lalitha Krishna veni	1st BSc (computers)
9	E. Satya	1st BSc (computers)
10	T Vidya Bhanu Sri	1st BSc (computers)
11	E.Mounika	1st BSc (computers)
12	V.N.S.L sailaja	1st BSc (computers)
13	M.Mounika	1st BSc (computers)
14	A.Rovathi V.Lakshmi	1st BSc (computers)
15	D. Lakshmi Durga	1st BSc (computers)
16	V. Mohan Kumar	1st BSc (computers)
17	M B.K. Janaadhan	1st BSc (computers)
18	N.V.S. Naresh	1st BSc (comp)
19	Satya Narayana	I BSc (comp)
20	Devandhra	I BSc (comp)
21	Sastri Priya	I. BSc (comp)
22	K. Subhash	I BSc (computers)
23	D Abhishek Babu	1st BSc (computers)
24	K. Balu	1 BSc (comput)
25	P Anirudh kumar	1st BSc (comp)
26		1st BSc (comp)
27		
28		
29		
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