



# LORD MAHAVIRA SCHOOL

Sector-29, Noida, 201303

Website: [www.lordmahaviraschool.co.in](http://www.lordmahaviraschool.co.in) / Email: lord.mahavira@yahoo.in

**CLASS : XI**

**SUBJECT: COMPUTER SCIENCE (083)**

**BOOK: COMPUTER SCIENCE WITH PYTHON(NCERT)**

S.NO.	MONTH	UNIT	SUB TOPICS	ACTIVITY
1.	JULY	COMPUTER SYSTEM AND ORGANIZATION	Introduction To Computer System, Hardware, Software . Computer memory, memory units	Computer practical to understand the concept well.
		COMPUTER SYSTEM AND ORGANIZATION	Software : System Software(operating System ,language processor),application software.  Boolean logic: NOT, AND, OR, NAND, NOR, XOR, NOT, truth tables and De Morgan's laws, Logic circuits  Number System: Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems  Encoding Schemes: ASCII, ISCII, and Unicode (UTF8, UTF32) Unit II:	
2	AUGUST	COMPUTATIONAL THINKING AND PROGRAMMING	Steps for Problem solving loke analyse,developing algorithm  Representing algorithm using flowchart.  Introduction of python ,python characteristics , interface of python :interactive mode , script mode,python character set , token(keyword , identifier , literals , operators)	Computer practical to explain all the concepts.

2	AUGUST	<b>COMPUTATIONAL THINKING AND PROGRAMMING</b>	<p>L value ,R-value,Comments</p> <ul style="list-style-type: none"> <li>● Knowledge of data types: Number(integer, floating point,complex), boolean, sequence(string, list, tuple), None, Mapping(dictionary), mutable and immutable data types.</li> <li>● Operators: arithmetic operators, relational operators, logical operators, assignment operators, augmented assignment operators, identity operators (is, is not), membership operators (in not in) ●</li> </ul> <p>Expressions, statement, type conversion, and input/output: precedence of operators, expression, evaluation of an expression, type-conversion (explicit and implicit conversion), accepting data as input from the console and displaying output.</p> <ul style="list-style-type: none"> <li>● Errors- syntax errors, logical errors, and run-time errors</li> </ul>	Lab activity or different python programs to explain the subtopics.
6.	SEPTEMBER	<b>REVISION AND TERM 1 EXAM</b>		
7.	OCTOBER	<b>Computational Thinking and Programming</b>	<p>Flow of Control: introduction, use of indentation, sequential flow, conditional and iterative flow</p> <p>Conditional statements: if, if-else, if-elif-else, flowcharts</p> <p>Iterative Statement: for loop, range(), while loop,</p>	Python program based on selection flow of control.

			flowcharts, break and continue statements, nested loops	Python program based on iteration flow of control.
8.	NOVEMBER	Computational Thinking and Programming	<ul style="list-style-type: none"> <li>• Strings: introduction, string operations (concatenation, repetition, membership and slicing), traversing a string using loops, built-in functions/methods–len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(), rstrip(), strip(), replace(), join(), partition(), split()</li> </ul>	Lab activity/practical
9.	DECEMBER	Computational Thinking and Programming	<p>Lists: introduction, indexing, list operations (concatenation, repetition, membership and slicing), traversing a list using loops, built-in functions/methods–len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists, x</p> <ul style="list-style-type: none"> <li>• Tuples: introduction, indexing, tuple operations (concatenation, repetition, membership and slicing); built-in functions/methods – len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple;</li> </ul>	<p>Python Programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of elements in a tuple.</p> <p>Python programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of elements in a tuple.</p>
10.	JANUARY	Computational Thinking and Programming	<ul style="list-style-type: none"> <li>• Dictionary: introduction, accessing items in a dictionary using keys, mutability of a dictionary (adding a new</li> </ul>	Python programs: count the number of times a character appears in a given string using a dictionary, create a

			<p>term, modifying an existing item), traversing a dictionary, built-in functions/methods – len(), dict(), keys(), values(), items(), get(), update(), del(), del, clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), sorted());</p> <ul style="list-style-type: none"> <li>● Introduction to Python modules: Importing module using 'import ' and using from statement, importing math module (pi, e, sqrt(), ceil(), floor(), pow(), fabs(), sin(), cos(), tan()); random module (random(), randint(), randrange()), statistics module (mean(), median(), mode()).</li> </ul>	<p>dictionary with names of employees, their salary and access them.</p>
		Socities,law and ethics	<p>Digital Footprints</p> <ul style="list-style-type: none"> <li>● Digital Society and Netizen: net etiquettes, communication etiquettes, social media etiquettes</li> <li>● Data Protection: Intellectual property rights (copyright, patent , trademark), violation of IPR(plagiarism, copyright infringement, trademark infringement), open source software and licensing (Creative Commons, GPL and Apache)</li> <li>● Cyber Crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, cyber trolls, cyber bullying</li> <li>● Cyber safety: safely browsing the web, identity protection, confidentiality</li> </ul>	<p>Go through some online links/websites to gather more information to have better understanding.</p>

			<ul style="list-style-type: none"> <li>● Malware: viruses, trojans, adware</li> <li>● E-waste management: proper disposal of used electronic gadgets.</li> <li>● Information Technology Act (IT Act)</li> <li>● Technology and society: Gender and disability issues while teaching and using computers</li> </ul>	
11.	FEBRUARY		<b>REVISION FOR EXAM</b>	
12.	MARCH		<b>TERM-2 EXANM</b>	



# LORD MAHAVIRA SCHOOL

Sector-29, Noida, 201303

Website: [www.lordmahaviraschool.co.in](http://www.lordmahaviraschool.co.in) / Email: lord.mahavira@yahoo.in

**CLASS: XII**

**SUBJECT: COMPUTER SCIENCE (083)**

**(BOOK: NCERT)**

S.NO	MONTH	UNITS	SUB-TOPICS	PROGRAMS
1.	APRIL	FUNCTION	Introduction, types of functions, how to define user define function, concept of parameters: actual parameters, formal parameters. types of arguments (positional, keyword, default, Variable length arguments), how a function will return value to the calling part, flow of control in case of function, local scope of a variable, global scope	<ul style="list-style-type: none"> <li>Without parameters: Function to display user introduction, time table etc.</li> <li>With parameters: Sum of two numbers. Sum of n natural numbers Calculate sum of all the elements of list</li> <li>Programs based on subtopics.</li> </ul>
2.	MAY	Exception Handling	Introduction ,different types of exception, introduction of try and except block.	<ul style="list-style-type: none"> <li>Handling ZeroDivisionError And programs based to understand the concept</li> </ul>
3.	MAY	Database management	Introduction of database,database management software(example),Structure query language,database terms:degree,cardinality,concept of keys	<ul style="list-style-type: none"> <li>Find the degree and cardinality of Different tables like employee,books</li> </ul>
4.	JUNE	SUMMER BREAK		
5.	JULY	FILE HANDLING	Different types of files,how to create text file by using writeline() and writelines(),how to read data from text file (read(),readline(),readlines() and return type in each case),seek() and tell() function Introduction of pickle module	<ul style="list-style-type: none"> <li>Create a text file by taking 5 sentences from user by write and writelines()</li> <li>Count the existence of special word like "to" , "the" etc.</li> <li>Count lines starting or ending with particular character.</li> </ul>
6.	AUGUST	FILE HANDLING : BINARY FILE	How to create binary file : storing records of students , employee , books etc by using dump() method ,reading records from binary file by using load() method ,importing os module for remove() and rename()	<ul style="list-style-type: none"> <li>Display all records/ particular record , count/display records matching condition , update a record,delete a record</li> </ul>
7.	SEPTEMBER		<b>REVISION AND TERM 1 EXAM</b>	

8.	OCTOBER	FILE HANDLING : CSV DATA STRUCTURE :STACK	Importing csv module , creating writer type object , writerow() and writerows(),reader type object,reader() ,stack principle,push and pop operation	<ul style="list-style-type: none"> <li>Count records,Display all records /Particular record</li> <li>Push elements of list/dictionary which satisfies particular condition in stack</li> </ul>
9.	NOVEMBER	DATABASE : SQL COMMANDS	DDL,DML,DCL,TCL,CREATE TABLE ,ALTER TABLE(ADD,MODIFY,DROP) ,ALTER TABLE STUDENT ADD PRIMARY KEY(Rollno),drop table ,select , order by , like , between and , in , is null .	<ul style="list-style-type: none"> <li>Implementation of commands in mysql</li> </ul>
10	DECEMBER	DATABASE ,PYTHON-MYSQL CONNECTIVITY,COMPUTER NETWORK,PROJECT WORK ,PRACTICAL WORK	Aggregate functions,group by , having clause , extraction of data from two tables,difference between join and natural join	<ul style="list-style-type: none"> <li>Implementation of sub topics in mysql , use of special module pymysql,prettytable</li> </ul>
11.	JANUARY		PREBOARDS & FILE SUBMISSION , REVISION	
12.	FEBRUARY		FINAL BOARD PRACTICAL	