

Hindustan College of Science and Technology

Farah (Mathura)

Department of Information Technology

Date: 10 April 2021

Circular

Registration for Value-Added Course: "Android Programming (VACIT-002)"

Dear Students,

We are pleased to announce a valuable opportunity for all the 3rd-year and Final Year students to enhance their skills and knowledge in the field of Android Programming. We understand the growing significance of mobile application development in today's digital era, and thus, we have organized a comprehensive "Android Programming" value-added course to equip you with the necessary expertise.

Course Details:

Course Name: Android Programming

Duration: 24 April 2021 to 29 June 2021 (30 Hrs)

Last Date of Registration: 19 April 2021

Registration Process:

To participate in this valuable opportunity, interested students must register themselves by 19 April 2021. To register, kindly contact Mr. Mohit Singh, Assistant Professor in the Department of Information Technology. Mr. Singh will guide you through the registration process and address any queries you may have.

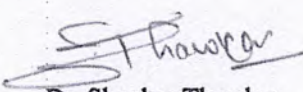
Please note that this course is mandatory for all the students of 3rd year /Final Year IT department. Therefore, we encourage you to register at the earliest to secure your participation.

We look forward to your active participation in this value-added course, which will undoubtedly broaden your horizons and open exciting opportunities in the world of mobile app development.

For any further information or clarification, please feel free to contact the undersigned.

Thank you.

Sincerely,


Dr. Shankar Thawkar

HOD, IT

Head

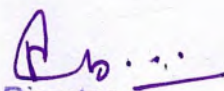
Department of Information Technology

Hindustan College of Science & Technology

Farah, Mathura

Copy to:

1. Director office for kind information
2. All Deans
3. All HODs – for circulation among all concerned
4. Office Copy


Director

Hindustan College of
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FARAH (MATHURA)

VISION OF THE DEPARTMENT

Information Technology undergraduate program empowers students with research and training-based education to become global technical leaders and entrepreneurs, creating positive societal impact.

MISSION OF THE DEPARTMENT

- Foster innovation, research, and entrepreneurship through real-world projects and industry collaborations.
- Develop ethical global leaders with theoretical and practical education, critical thinking, and social responsibility.
- Provide outcome-based education for holistic development, integrating technical skills with leadership and teamwork.

**HINDUSTAN COLLEGE OF SCIENCE AND TECHNOLOGY
MATHURA**

INVITES YOU FOR A
VALUE ADDED COURSE
ON

**PROBLEM SOLVING USING C AND C++
(VACIT-001)**

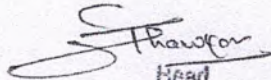
24th April 2021 - 29th June 2021

(Session: 2020 - 2021)

Registration Date: 12 April 2021 - 17 April 2021

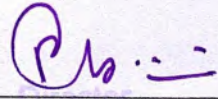
For Registration, Please contact:

Mr. Ajay Raj Parashar
Assistant Professor, IT


Head
Department of Information Technology
Hindustan College of Science & Technology
Farah, Mathura

DEPARTMENT OF INFORMATION TECHNOLOGY

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Director
Hindustan College of
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ABOUT

THE DEPARTMENT

Department of Information Technology was established in the year 1999 with an objective of imparting quality education in the field of Information Technology. Department of IT was accredited by National board of Accreditation (NBA) in 2006.

The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QUBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT

THE PROGRAM

This program is designed to provide a comprehensive overview of C/C++ programming. The syllabus covers a range of topics including functions, arrays and pointers, secure coding practices, exception handling and assertions, disk files and I/O, and generic programming with templates. Through practical exercises and problem sets, students will develop the skills to write efficient and secure code in C/C++. The course also covers the dynamic memory allocation model and the use of smart pointers to mitigate common memory pitfalls. In addition, students will have the opportunity to work with the Standard Template Library and understand its various components such as containers, iterators, and algorithms. This program provides a comprehensive learning experience for anyone looking to enhance their C/C++ programming skills. By the end of the program, students will be well-equipped to tackle complex coding projects and have a deep understanding of how to write efficient and secure code in C/C++.

Objectives

1. To provide a comprehensive overview of C/C++ programming and its various components.
2. To equip students with the skills to write efficient and secure code through the use of functions, arrays and pointers, and secure coding practices.
3. To teach students how to handle errors and exceptions in their code, and implement proper error handling and assertions.
4. To introduce students to the dynamic memory allocation model, including smart pointers and common memory pitfalls.
5. To help students understand and utilize the Standard Template Library and its various components, including containers, iterators, algorithms, and customizing and extending the STL. Allowing them to perform real-world data analysis and extract insights.

COURSE

OUTCOMES

CO-1:

Understand functions and write efficient, secure code in C/C++.

CO-2:

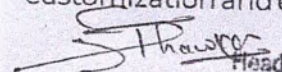
Analyze and use arrays, pointers, dynamic memory allocation, and type inference.

CO-3:

Identify and prevent common string and integer errors using secure coding practices.

CO-4:

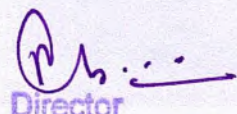
Implement error handling, assertions, exceptions, stack unwinding, disk files, I/O streams, and the standard template library (STL), including customization and extension



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CO-PO-PSO MAPPING

Problem Solving using C and C++ (VACIT-001)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	3	2	2	-	3	-	3	2	-	-	2	2	3	-
CO-2	2	3	3	3	-	1	-	2	2	-	-	2	3	3	-
CO-3	1	2	-	2	1	1	-	-	2	-	-	2	3	2	-
CO-4	3	2	2	3	3	3	-	3	2	-	2	2	3	3	-
Avg	2.25	2.50	2.33	2.50	2.00	2.00	0.00	2.67	2.00	0.00	2.00	2.00	2.75	2.75	0.00

PSO1:

Equip students with the latest IT knowledge and skills to tackle real-world challenges.

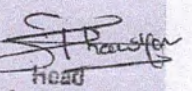
PSO2:

Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:

Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning


 Head
 Department of Information Technology
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CONVENOR



Dr. Shankar Thawkar
Associate Professor
HOD, IT

CO-CONVENOR



Mrs. Deepti Mittal
Assistant Professor
Dy. HOD, IT

VAC COORDINATOR



Mr. Ajay Raj Parashar
Assistant Professor
IT Department

A handwritten signature in black ink, appearing to read 'S. Thawkar'.

Head
Department of Information Technology
Hindustan College of Science & Technology
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A handwritten signature in purple ink, appearing to read 'A. B. ...'.

Director
Hindustan College of
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SPEAKERS



Mr. Ajay Raj Parashar
Assistant Professor
IT Department

A handwritten signature in black ink, appearing to read 'S. Parashar'.

Head

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A handwritten signature in purple ink, appearing to read 'A. S. ...'.

Director

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COURSE OUTLINE

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

- Introduction to functions
- Alt function syntax
- Function return type deduction
- Static, const, and inline functions
- Default parameters
- Overloaded functions (operator and members)
- Friend Functions
- Overriding functions

Module 2: Arrays and Pointers in C/C++

- Introduction to arrays and pointers
- Smart pointers
- Pointers and dynamic memory allocation
- Type inference
- Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

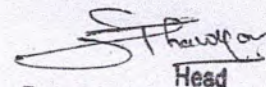
- Common string, integer, and dynamic memory allocation errors
- Integer and dynamic memory allocation vulnerabilities
- String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

- Introduction to errors and exceptions
- Exception mechanisms
- Exceptions and polymorphism
- Stack unwinding and cleanup
- Common error handling issues
- Using streams for input and output
- String streams, file streams, and bidirectional I/O
- Dynamic memory allocation model
- Working with dynamic memory, array-pointer duality, and smart pointers.

Text Book/References:

- Horowitz and Sahani, "Fundamentals of Data Structures", Galgotia Publications Pvt Ltd Delhi India.



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LECTURE PLAN

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

- Lecture 1: Introduction to functions
- Lecture 2: Alt function syntax
- Lecture 3: Function return type deduction
- Lecture 4: Static, const, and inline functions
- Lecture 5: Default parameters
- Lecture 6: Overloaded functions (operator and members)
- Lecture 7: Friend Functions
- Lecture 8: Overriding functions

Module 2: Arrays and Pointers in C/C++

- Lecture 9: Introduction to arrays and pointers
- Lecture 10: Smart pointers
- Lecture 11: Pointers and dynamic memory allocation
- Lecture 12: Type inference
- Lecture 13: Array and pointer arithmetic and indirections

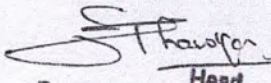
Module 3: Secure Coding Practices in C/C++

- Lecture 14: Common string, integer, and dynamic memory allocation errors
- Lecture 15: Integer and dynamic memory allocation vulnerabilities
- Lecture 16: String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

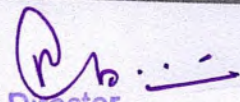
- Lecture 17: Introduction to errors and exceptions
- Lecture 18: Exception mechanisms
- Lecture 19: Exceptions and polymorphism
- Lecture 20: Stack unwinding and cleanup
- Lecture 21: Common error handling issues
- Lecture 22: Using streams for input and output
- Lecture 23: String streams, file streams, and bidirectional I/O fstream

- Lecture 24: Dynamic memory allocation model
- Lecture 25: Working with dynamic memory, array-pointer duality, and smart pointers
- Lecture 26: Review of functions in C/C++
- Lecture 27: Review of arrays and pointers in C/C++indirections
- Lecture 28: Review of secure coding practices in C/C++
- Lecture 29: Review of exception handling and I/O in C/C++
- Lecture 30: Final Exam Review


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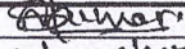
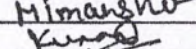
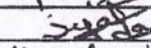
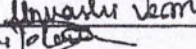
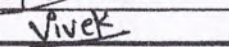
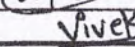
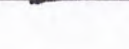
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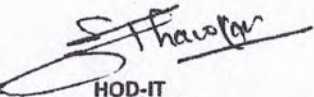
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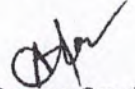

Director
Hindustan College of
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH - MATHURA

Department of Information Technology
Value Added Course - Registration Form
VACIT-001 - Problem Solving using C/C++

Session: 2020-2021			From 24th April'2021 - 29th June'2021		
S.N.	Roll No.	Name of the Student	Department	Semester	Signature of Student
1	190064013001	AMAN KRUMAR SONI	IT	4TH	
2	190064013002	HIMANSHU MOOLCHANDANI	IT	4TH	
3	190064013004	KUNAL	IT	4TH	
4	190064013005	SEJAL JAIN	IT	4TH	
5	190064013006	URVASHI VERMA	IT	4TH	
6	190064013007	VIPLAV KANT RAI	IT	4TH	
7	190064013008	VIVEK SHARMA	IT	4TH	


HOD-IT
Head
Department of Information Technology
Hindustan College of Science & Technology
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Program Coordinator


Director
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Department of Information Technology

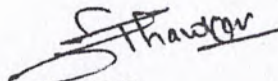
VACIT-001 - Problem Solving using C/C++

Session: 2020-2021

Session Wise Attendance Sheet

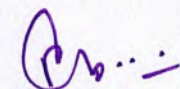
S.N.	Roll No.	Name of the Student	Attendance															Signature	
			24/4	1/5	8/5	15/5	29/5	5/6	12/6	19/6	26/6	3/7	10/7	17/7	24/7	31/7			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
1	190064013001	AMAN KRUMAR SONI	P	P	P	P	P	(A)	P	P	P	P	P	P	P	P	(A)	P	Amman
2	190064013002	HIMANSHU MOOLCHANDANI	P	P	(A)	P	P	P	(A)	P	(A)	P	P	P	P	(A)	P	Himanshu	
3	190064013004	KUNAL	(A)	P	(A)	P	P	P	P	P	P	(A)	P	P	P	(A)	P	Kunal	
4	190064013005	SEJAL JAIN	P	P	P	P	P	P	P	(A)	P	P	P	P	P	P	P	Sejal	
5	190064013006	URVASHI VERMA	P	P	P	P	(A)	P	P	P	P	(A)	P	P	P	P	P	Urvashi	
6	190064013007	VIPLAV KANT RAI	P	(A)	P	P	P	P	P	P	P	P	P	P	P	P	P	Viplav	
7	190064013008	VIVEK SHARMA	(A)	(A)	P	P	P	(A)	P	P	P	P	P	P	P	P	(A)	Vivek	
Total Attendance			05	05	05	07	06	05	06	07	05	07	05	07	07	06	05		
Attendance %																			

Total Lectures = 02 X 15 = 30


HOD-IT

Department of Information Technology
Hindustan College of Science & Technology
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Program Coordinator


Director
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH, MATHURA
DEPARTMENT OF INFORMATION TECHNOLOGY
CLASS TIME TABLE FOR EVEN SEMESTER 2020-21

SESSION: 2020-21
 YEAR/SEM: II / 4 IT-A

W.E.F. 5/04/21
 ROOM NO: 221 A

CLASS TEACHER: MRS. SUMITA LAMBA
 COUNSELORS: MRS. SUMITA LAMBA

Day \ Time	I	II	III	IV	1:30-02:20	V	VI	VII
	10:10-11:00	11:00-11:50	11:50-12:40	12:40-01:30		02:20-03:10	03:10-04:00	04:00-04:50
MONDAY	OS	WD	EE	PP		UHV	Python Lab#4	
TUESDAY	T AFL	PDP (CV)		OS		PP	OS Lab#5	
WEDNESDAY	T AFL	WD	OS	EE		PDP (MS)		
THURSDAY	EE	WD	UHV	T AFL		OS	WD Lab#6	
FRIDAY	OS	EE	WD	T AFL		UHV	Python Lab#4	
SATURDAY	WD	UHV	EE	T AFL		Value Added Course (VACIT001) PROBLEM SOLVING USING C/C++		

			Class Room No			
Subject Code	Name of the Subject		Lecture	Tutorial (A)	Name of the Faculty	
KOE-048	ELECTRONICS ENGG.	EE			MRS. RUPALI MAHAJAN	
KVE-401	UHV	UHV			DR. KESHAV DEV	
KCS-401	OPERATING SYSTEM	OS			MR. AJAY PARASHAR	
KCS-402	T AFL	T AFL			MR. MOHIT SINGH	
KIT-401	WEB DESIGNING	WD			MRS. DEEPTI MITTAL	
KNC-402	PYTHON PROGRAMMING	PP			MRS. SUMITA LAMBA	
	PDP				MS. CHHAYA VARUN / MR. MOHIT SHARMA	

			Practical Room No.			
Lab Code	Name of the Lab		Lab No (A)	Name of the Faculty		
KCS-451	OS LAB			MR. AJAY PARASHAR		
KIT-451	WD LAB			MRS. DEEPTI MITTAL		
KCS-453	PYTHON PROGRAMMING LAB			MRS. SUMITA LAMBA		
VACIT001	VALUE ADDED COURSE SOLVING USING C/C++	(PROBLEM		MR. AJAY PARASHAR		

(Mrs. Deepthi Mittal)
 IT/EC, IT Dept.

(Signature)
 (Dr. Shankar Thawkar)
 HOD, IT Dept.
 Head
 Department of Information Technology
 Hindustan College of Science & Technology
 Farah, Mathura

(Signature)
 Director
 Hindustan College of
 Science & Technology
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CERTIFICATE OF COMPLETION

Department of Information Technology

Academic Session 2020-21

This is to certify that Mr. Himanshu Moolchandani, Roll No. 190064013002
of Course B. Tech. Information Technology, VI Semester
has successfully completed 30 hours Value Added Course titled
“PROBLEM SOLVING USING C AND C++” (Course Code: VACIT-001).

Dr. Shankar Thawkar
Head of Department

Mr. Ajay Raj Parashar
Course Coordinator

Dr. R. K. Upadhyay
Director

Director
Hindustan College of
Science & Technology
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CERTIFICATE OF COMPLETION

Department of Information Technology

Academic Session 2020-21

This is to certify that Ms. Urvashi Verma, Roll No. 190064013006
of Course B. Tech. Information Technology, VI Semester
has successfully completed 30 hours Value Added Course titled
“PROBLEM SOLVING USING C AND C++” (Course Code: VACIT-001).

Dr. Shankar Thawkar
Head of Department

Mr. Ajay Raj Parashar
Course Coordinator

Dr. R. K. Upadhyay
Director