Indra Ganesan
COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC
IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 1

CURRICULAR ASPECTS

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

INDRA GANESAN COLLEGE OF ENGINEERING

Criteria 1	Curricular Aspects	100

1.1 Curricular Planning and Implementation (20)

1.1.1 The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

Table of Content

INDRA GANESAN COLLEGE OF ENGINEERING
IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India
(Approved by AICTE, NewDelhi, Affiliated to Anna University, Chennai-25)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PREFACE OF THE COURSE FILE

Batch	: 2018-2019
Academic Year	: 2018-2019/EVEN
Program	: COMPUTER SCIENCE AND ENGINEERING
Year&Semester	: 4thYear/8thSemester/'A'Section
Course Code	: CS6008
NBA Course Code	: C406
NameoftheCourse	: Human Computer Interaction
Facultyin-charge	: Mr.P.Suresh Pandi/Asst.Prof/CSE

Signature of the Faculty in-charge

HoD / CSE

Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REVIEW OF COURSE FILE

(to be pasted on the inner side of the file-backside).(#-State Yes/No.)

S.N	Details Date:	R-I-*	R-II-*&	R-III-*&	R-IV-*&$	R-V-*&$@
1.	Preface of the course file	Y				
2.	Vision, Mission, PEOs, POs, PSOs, Blooms taxonomy	Y				
3.	Subject handlers of yesteryears	Y				
4.	Timetable/Workload of the staff – Distribution of teaching load – Roles and Responsibilities	Y				
5.	Syllabus signed by staff & HoD	Y				
6.	Lecture Schedule signed by staff & HoD	Y				
7.	Course Committee meeting circular and minutes	Y				
8.	Identification of Curricular gap and Content Beyond the syllabus	Y				
9.	Self-study topics	Y				
10.	Previous AU Question papers	Y				
11.	Unit wise Q&A and Objective type questions	Y				
12.	Unit wise course material	Y				
13.	Assignment question paper with sample answer sheets and mark entry		Y	Y	Y	
14.	Tutorial question paper with key and mark entry		Y	Y	Y	
15.	Class test/IA test Q Paper with Key, sample answer papers and mark entry		Y	Y	Y	
16.	IA Test- result analysis-CAP-evidence-root cause analysis.		Y	Y	Y	
17.	Retest –Q paper-Attendance-marks		Y	Y	Y	
18.	AU Web portal entry sheet		Y	Y	Y	
19.	Very poor performance in first two tests-action taken.-communication to parents-evidence		Y	Y	Y	
20.	Absence for two tests-action taken-communication to parents-evidence.			Y	Y	
21.	Indiscipline of student reported, if any			Y	Y	
22.	Special class/coaching class/remedial class/attendance-CAP					
23.	Conduct of Seminar, Quizzes - proof		Y	Y	Y	
24.	Content beyond the syllabus - proof					
25.	Student feedback on faculty					Y
26.	Course end survey					Y
27.	Internal Assessment sheet					Y
28.	AU question paper with students feedback					Y
29.	Discrepancy of the question paper and correspondence, if any					Y
30.	AU result analysis-Details of arrear students.					Y
31.	AU grade sheet					Y
32.	CO – PO & PSO attainment sheet					Y
	Signature of Course handling faculty					
	Signature of HoD					

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Faculty TimeTable

Mr. P. Suresh Pandi AP/CSE

DayOrder	1	2	3	4	5	6	7	8
I		HCI						
II								
III			HCI					
IV								
V	HCI					HCI		

S.Code	Title	Year/Branch	Hours
CS6008	Human Computer Interaction	IV/CSE	4Hours
TOTAL- 4hours			

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CS6008 **HUMAN COMPUTER INTERACTION** L T P C3003

OBJECTIVES:

- Learn the foundations of Human Computer Interaction.
- Be familiar with the design technologies for individuals and persons with disabilities.
- Be aware of mobile HCI.
- Learn the guidelines for user interface.

UNITI FOUNDATIONS OF HCI 9

The Human: I/O channels – Memory – Reasoning and problem solving; The computer: Devices – Memory – processing and networks; Interaction: Models – frameworks – Ergonomics – styles – elements– interactivity-Paradigms.

UNITII DESIGN&SOFTWARE PROCESS 9

Interactive Design basics – process – scenarios – navigation – screen design – Iteration andprototyping. HCI in software process – software life cycle – usability engineering – Prototyping inpractice – design rationale. Design rules – principles, standards, guidelines, rules. EvaluationTechniques– UniversalDesign.

UNITIII MODELSAND THEORIES 9

Cognitive models –Socio-Organizational issues and stake holder requirements –Communication andcollaborationmodels-Hypertext, Multimedia andWWW.

UNITIV MOBILEHCI 9

Mobile Ecosystem: Platforms, Application frameworks- Types of Mobile Applications: Widgets,Applications, Games- Mobile Information Architecture, Mobile 2.0, Mobile Design: Elements ofMobile Design,Tools.

UNITV WEB INTERFACE DESIGN 9

DesigningWebInterfaces–Drag&Drop,DirectSelection,ContextualTools,Overlays,InlaysandVirtual Pages, Process Flow–CaseStudies.

Total:45 Periods

OUTCOMES:

At the end of the course, the students should be able to:

- Design effective dialog for HCI.
- Design effective HCI for individuals and persons with disabilities.
- Assess the importance of user feedback.
- Explain the HCI implications for designing multimedia/ecommerce/ e-learning Websites.
- Develop meaningful user interface.

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TEXTBOOKS:

1. Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, "Human ComputerInteraction",3rdEdition,PearsonEducation,2004(UNIT I,II& III).

2. Brian Fling, "Mobile Design and Development", First Edition ,O"ReillyMediaInc.,2009(UNIT –IV).

3. Bill Scott and Theresa Neil, "Designing Web Interfaces", First Edition, O"Reilly,2009.(UNITV).

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Lecture Schedule

Degree/Program: **B.E /CSE** Course code &Name: **CS6008 Human Computer Interaction**
Duration: **2018-2019** Semester: VIII Section: **A** Faculty: Mr.P.Suresh Pandi AP/CSE

AIM:

To expose the student's principles of operation and performance in human computer interaction

OBJECTIVES:

To impart knowledge on

(i) To learn the foundations of Human Computer Interaction.
(ii) To become familiar with the design technologies for individuals and persons with disabilities.
(iii) To be aware of mobile HCI.
(iv) To learn the guidelines for user interface.

PREREQUISITES: Human Study theory, Computer Study theory.

COURSEOUTCOMES:

After the course, the student should be able to:

CO	Course Outcomes	POs	PSOs
C406.1	Design effective dialog for HCI	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C406.2	Design effective HCI for individuals and persons with disabilities.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C406.3	Assess the importance of user feedback.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C406.4	Explain the HCI implications for designing multimedia/ ecommerce/e-learning Websites.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C406.5	Develop meaningful user interface.	1,2,3,4,5,6,7,8,9,10,11,12	1,2

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S.No	Date	Topics to be Covered	Book
UNIT-I		**FOUNDATIONS OF HCI**	**Target periods:09**
1	6.2.19	The Human:	T1/BB
2	7.2.19	I/O channels	R2/BB
3	7.2.19	Memory	T1/BB
4	8.2.19	Reasoning and problem solving	T3/BB
5	9.2.19	The Computer:	R3/BB
6	10.2.19	Devices and Memory	T2/BB
7	15.2.19	Processing and networks	T1/BB
8	16.2.19	Interaction: Models and frameworks, Ergonomics and styles	T1/BB
9	17.2.19	Elements, interactivity, Paradigms, Case Studies	T1/BB
10	21.2.19	Tutorial	
11	21.2.19	Tutorial	
UNIT II-		**DESIGN & SOFTWARE PROCESS**	**Target periods:09**
12	26.2.19	Interactive Design: Basics, process, scenarios.	T1/BB
13	01.3.19	Navigation and screen design.	R2,T1/BB
14	3.3.19	Iteration and prototyping	R2,T1/BB
15	16.3.19	HCI in software process:	T1/BB
16	20.3.19	Software lifecycle	R3/BB
17	21.3.19	Usability engineering	T1/BB
18	24.3.19	Prototyping in practice and design rationale.	T1/BB
19	27.3.19	Design rules: principles, standards, guidelines, rules.	R1/BB
20	27.3.19	Evaluation Techniques and Universal Design	T1/BB
21	28.3.19	Tutorial	
22	28.3.19	Tutorial	
UNIT III-		**MODELS AND THEORIES**	**Target periods:09**
23	30.3.19	HCI Models:	T1/BB
24	31.3.19	Cognitive models:	T1/BB
25	3.4.19	Socio-Organizational issues	T1/BB
26	5.4.19	Stakeholder requirements	R1/BB
27	6.4.19	Communication	T2/BB
28	10.4.19	Collaboration models	R1/BB
39	12.4.19	Hypertext	T3/BB
30	24.4.19	Multimedia and WWW	T3/BB
31	24.4.19	Tutorial	
32	26.4.19	Tutorial	
UNIT IV-		**MOBILE HCI**	**Target Periods:09**
33	26.4.19	Mobile Ecosystem	T1/BB
34	28.4.19	Platforms, Application frameworks	T1/BB
35	28.4.19	Types of Mobile Applications:	R2/BB
36	2.5.19	Widgets and Applications	T1/BB
37	3.5.19	Games-Mobile Information Architecture	T3/BB
38	4.5.19	Mobile 2.0	R3/BB
39	8.5.19	Mobile Design:	R2/BB
40	10.5.19	Elements of Mobile Design and Tools	T1/BB
41	10.5.19	Tutorial	
42	12.5.19	Tutorial	

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UNIT V- WEB INTERFACE DESIGN			Target Periods:09
43	12.5.19	Designing Web Interfaces	T1/BB
44	15.5.19	Drag &Drop	T2/BB
45	15.5.19	Direct Selection	R1/BB
46	16.5.19	Contextual Tools	T3/BB
47	16.5.19	Overlays	R3/BB
48	17.5.19	Inlays	T1/BB
49	17.5.19	Virtual Pages	R2/BB
50	18.5.19	Process Flow	R1/BB
51	18.5.19	Case Studies	
52		Tutorial	
53		Tutorial	
Content Beyond the Syllabus			
54	29.5.19	*Testing tools of Screen design and layout*	Material

TEXTBOOKS:

4. Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, "Human Computer Interaction", 3rd Edition,Pearson Education,2004(UNIT I, II&III).
5. Brian Fling,"Mobile Design and Development",First Edition,O"Reilly Media Inc.,2009(UNIT –IV).
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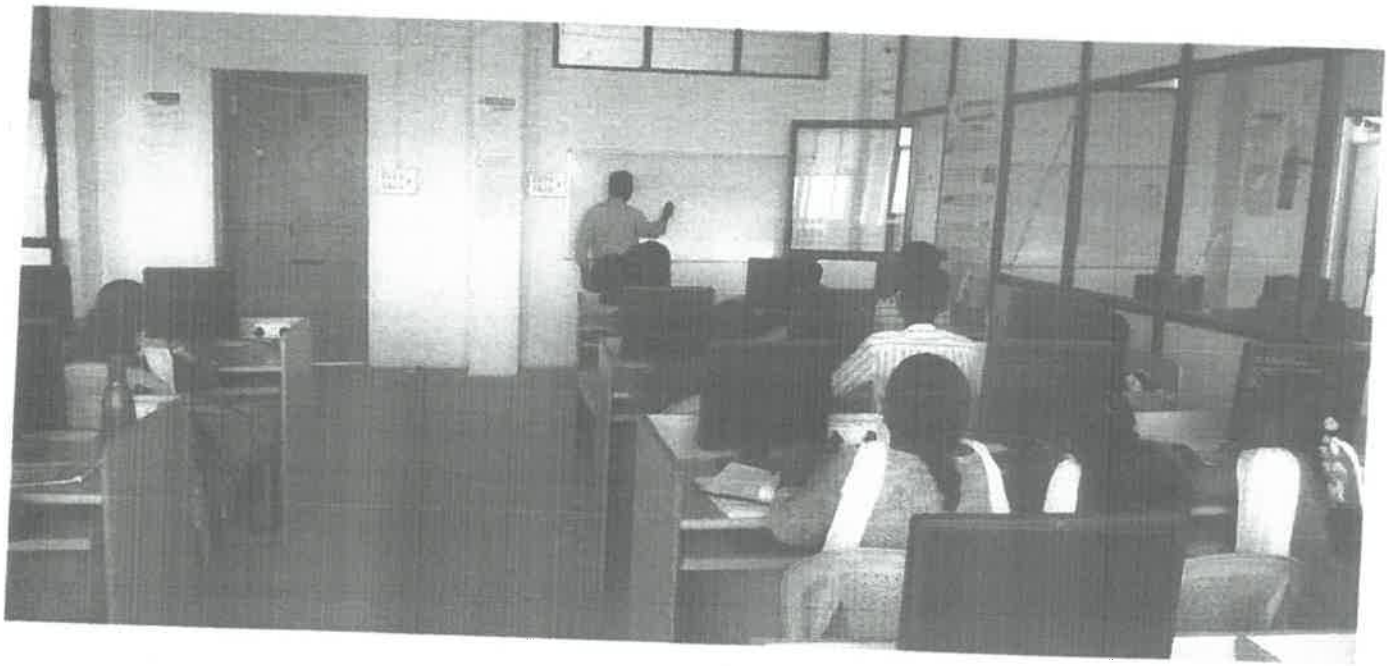
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CBS-PROOF

ACADEMIC YEAR: 2018-2019(EVEN) **SEM: 08** **REGULATION: 2013**

PROGRAM: CSE **Name of the Faculty: Mr.P. Suresh Pandi**

TOPIC: Screen design and layout



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Assignment Answer Sheet

Name of the Student: Prem kumar . N

AU Register Number: 811215104031

Assignment – 01			Date of Issue:	11.4.2019	Marks	10
Course code	CS6008	Course Title	HCI			
Year	IV	Semester/Section	VIII	Date of Submission:	15.4.2019	

Q.No	Questions	CO
1	Discuss the Nielsen's ten heuristics	CO2
2	Explain the elements of WIMP Interface	CO5

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Content Quality	6	5
Presentation Quality	2	2
Timely submission	2	2
Total marks	10	9

P. Sharpe

Name and Signature of the Faculty Incharge

D Thudd

HoD/CSE

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STUDENT FEEDBACK ON FACULTY
THEORY COURSE

ACADEMIC YEAR: 2018-2019 ODD SEMESTER

Name of Department :	CSE	Year / Sem:	4 / IV	Faculty Name	Mr. P. Sureash Pandi
Subject Code & Name	CS6008 & Human Computer Interaction				

S.No.	QUESTIONS	Excellent	Very Good	good	Satisfactory	Somewhat Satisfactory	Not Satisfactory
		5	4	3	2	1	0
1.	Delivery of Lectures by Interactive Communication	✓					
2.	Use of Teaching Aids and ICT		✓				
3.	Level of Preparedness & Knowledge Level		✓				
4.	Involvement in mentoring and guiding		✓				
5.	Effective Time management		✓				
6.	Is the teacher completing syllabus as per lecture schedule?	✓					
7.	Is the teacher distributing answer scripts of students as per schedule?			✓			
8.	Is the teacher addressing grievances on answer scripts of IA while distributing?			✓			
9.	Is the teacher covering content beyond syllabus (CBS)?		✓				
10.	Is the teacher punctual to class?		✓				

HoD/ CSE

IQAC Co-ordinator

Principal

Dr. G. Balakrishnan, M...
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RegisterNumber:

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Internal Assessment Exam-I			Date/Session	24.9.24/FN	Marks	50
Course code	CS6008	Course Title	Human Computer Interaction			
Regulation	2013	Duration	90minutes	Academic Year	2018-2019	
Year	2018	Semester	VIII	Department	CSE	

COURSEOUTCOMES

CO1:	Design effective dialog for HCI.
CO2:	Design effective HCI for individuals and persons with disabilities.
CO3:	Assess the importance of user feedback.
CO4:	Explain the HCI implications for designing multimedia/ecommerce/e-learning Websites.
CO5:	Develop meaningful user interface.
CO6:	Design effective dialog for HCI

Q.No.	Question	CO	BTS
	PART A		
	(Answer all the Questions 10x2 =20Marks)		
1	Bring out the layers of mobile ecosystem.	1	1
2	List the pros and cons of mobile game application.	2	1
3	Why JavaScript and Ajax have been ignored for web application on the mobile?	2	1
4	Define Color palettes	2	2
5	Give some examples of world largest mobile operators.	1	1
6	Identify the categories of mobile platforms.	2	2
7	Compare the various mobile application type.	2	2
8	Define application context.	2	2
9	List the disciplines of information architecture.	2	2
10	List the mobile prototyping.	3	2
	PART B		
	(Answer all the Questions 2x10=20Marks)		
11a	Describe the following a. Mobile EcoSystem b. Platforms	2	2
	OR		
11b	Appraise the types of mobile applications with examples.	2	2
12a	List and explain the elements of mobile design.	2	2
	OR		
12b	Explain briefly about mobile information architecture.	2	2
	PART C		
	(Answer all the Questions 1x10=10Marks)		
13a	Elaborate on Mobile application medium types	2	2
	OR		
13b	With neat diagram of mobile ecosystem,discuss its platforms and application frameworks	2	3

Course Faculty

(Name/Sign/Date)

CSE/HoD

(Name/Sign/Date)

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Q.No.	Question
	PART A **(Answer all the Questions 10x2 =20Marks)**
1	**Bring out the layers of mobile ecosystem.** • Mobile platform. • Binary Runtime Environment for Wireless (BREW) BREW is a licensed platform created by Qualcomm for mobile devices, mostly for the U. • Proprietary Proprietary platforms are designed and developed by device makers for use on their devices.
2	**List the pros and cons of mobile game application.** The advantages of mobile apps include convenience, easy communication with customers, and online usage. The disadvantages of mobile apps include difficulty to create, the cost to create them, the cost to make them available to people, and the need for updates and support.
3	**Why JavaScript and Ajax have been ignored for web application on the mobile?** JavaScript and Ajax have been ignored because using an Ajax-based web application on your phone can drain your battery at a rate of four to five times your normal power consumption. JavaScript consumes more processor power and therefore more battery life.
4	**Define Color palettes.** A colour palette, in the digital world, refers to the full range of colours that can be displayed on a device screen or other interface, or in some cases, a collection of colours and tools for use in paint and illustration programs. In the traditional RYB colour wheel, the primary colours are red, yellow, and blue.
5	**Give some examples of world largest mobile operators.** Rank — Company — Country 1 — China Mobile — China 2 — Verizon Communications — United States 3 — Comcast — United States 4 — AT&T — United States
6	**Identify the categories of mobile platforms.** • Native Mobile Applications. Native mobile applications are built specifically for a particular operating system (OS), such as iOS for Apple devices or Android for Android devices. ... • Web-Based Mobile Applications. ... • Hybrid Mobile Applications. ... • Conclusion.
7	**Compare the various mobile application type.** Native apps are developed for a particular operating system (OS) or one specific platform. They can be downloaded from various app marketplaces. A custom mobile app development company uses Java and Eclipse to design Android native apps, while iOS native apps are written in Swift and Objective-C.
8	**Define application context.** An application context is a set of data that identifies tasks that are running in the context of your application and platform. CICS® adds an application context to each task at the point the application is entered.
9	**List the disciplines of information architecture.** • Architecture - Structural modeling of intent. • Design - Structural design of shared information environments. • Engineering - Systemization of structural design.
10	**List the mobile prototyping.** • Figma — Best mobile app prototyping tool for interactive prototypes. • Invision — Best mobile app prototyping tool for collaborative designs. • Mockplus — Best mobile app prototyping tool for hi-fi prototypes. • Marvel — Best mobile app prototyping tool for beginners.

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PART B
(Answer all the Questions 2x10=20Marks)

11a **Describe the following**

c. Mobile EcoSystem

The mobile ecosystem refers to the interconnected network of mobile devices, operating systems, applications, and services that enable communication, computing, and entertainment on the go. It includes smartphones, tablets, wearables, and other portable devices, along with the software, networks, and infrastructure that support them. The mobile ecosystem has evolved rapidly over the past decade, driven by advancements in technology and the increasing demand for mobile connectivity and functionality. Today, the mobile ecosystem is a thriving and dynamic environment that continues to innovate and expand, shaping the way we live, work, and interact with the world around us.

d. Platforms

In the mobile ecosystem, platforms refer to the operating systems that power mobile devices. The two dominant platforms in the mobile industry are Android, developed by Google, and iOS, developed by Apple.

Android is an open-source platform used by many device manufacturers, offering a wide range of devices at various price points. It allows for high customization and flexibility for both users and developers.

iOS, on the other hand, is a closed platform exclusive to Apple devices. It is known for its smooth user experience, tight integration with Apple's hardware, and a curated App Store with stringent guidelines.

Other platforms like Windows Mobile and BlackBerry OS have declined in popularity over the years, with Android and iOS dominating the market.

OR

11b **Appraise the types of mobile applications with examples.**

Mobile applications can be broadly classified into several categories based on their functionality and purpose. Here are some common types of mobile applications with examples:

Games: These are apps designed for entertainment, including casual games, puzzles, and multiplayer games. Examples include Candy Crush Saga, PUBG Mobile, and Among Us.
Social Networking: These apps enable users to connect and interact with others. Examples include Facebook, Instagram, Twitter, and TikTok.
Utilities: These apps offer tools and functionalities to help users perform specific tasks. Examples include flashlight apps, calculators, and barcode scanners.
Productivity: These apps help users enhance their productivity and manage tasks more efficiently. Examples include Microsoft Office Suite (Word, Excel, PowerPoint), Google Workspace, and Evernote.
E-commerce: These apps allow users to browse and shop for products online. Examples include Amazon, eBay, and Alibaba.
Health and Fitness: These apps help users track their health and fitness goals, including exercise, diet, and sleep tracking. Examples include Fitbit, MyFitnessPal, and Nike Training Club.
Travel and Navigation: These apps provide travel-related information, including maps, directions, and booking services. Examples include Google Maps, Airbnb, and Uber.
News and Information: These apps deliver news articles, blogs, and other content to keep users informed. Examples include CNN, BBC News, and Flipboard.
Finance: These apps offer banking services, budgeting tools, and investment

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management. Examples include PayPal, Mint, and Robinhood.
Education: These apps provide learning resources and educational content. Examples include Duolingo, Khan Academy, and Coursera.

These categories are not exhaustive, and many apps may fall into multiple categories, offering a combination of functionalities to meet users' diverse needs.

12a **List and explain the elements of mobile design.**

Mobile design involves creating interfaces and experiences for mobile devices. Several key elements are crucial for effective mobile design:

Responsive Design: Mobile devices come in various screen sizes and resolutions. A responsive design ensures that your app or website adapts and looks good on different devices, from smartphones to tablets.
User Interface (UI): The UI includes all the visual elements users interact with, such as buttons, menus, and forms. It should be intuitive, visually appealing, and easy to use on a small touchscreen.
User Experience (UX): UX encompasses the overall experience of using the app or website, including how easy it is to navigate, the speed of interactions, and the overall satisfaction of the user.
Navigation: Mobile apps should have simple and clear navigation to help users move between different sections or pages. Common navigation patterns include tab bars, side menus, and bottom navigation bars.
Typography: Text should be legible and easy to read on a small screen. Use appropriate font sizes and styles to enhance readability.
Color Scheme: Choose a color scheme that is visually appealing and consistent with your brand. Be mindful of color contrast to ensure readability, especially for users with visual impairments.
Icons and Images: Use icons and images to enhance visual appeal and convey information quickly. Ensure that icons are intuitive and have clear meanings.
Touch Gestures: Mobile devices rely on touch gestures for interaction. Design interfaces that are optimized for touch, with elements that are easy to tap and swipe.
Loading Times: Mobile users have limited patience for slow-loading apps or websites. Optimize your design to reduce loading times and improve performance.
Feedback and Confirmation: Provide feedback to users when they perform actions, such as button presses or form submissions. This helps users understand that their actions have been registered.

By considering these elements in your mobile design, you can create a user-friendly and engaging experience for your mobile app or website users.

OR

12b **Explain briefly about mobile information architecture.**

Mobile information architecture (IA) refers to the organization and structure of information within a mobile app or website. It involves designing a hierarchy that allows users to navigate and find information easily on small screens.

Key principles of mobile IA include:

Simplicity: Mobile screens have limited space, so the IA should be simple and straightforward. Avoid clutter and prioritize essential information.

Hierarchy: Create a clear hierarchy of information, with important content easily accessible from the main screen and less critical information nested within menus or subpages.

Navigation: Use intuitive navigation patterns, such as tabs, drawers, or bottom bars, to help users move between sections of the app or website.

Consistency: Maintain consistency in the placement of navigation elements and the organization of content throughout the app or website to reduce cognitive load for users.

Searchability: Provide a search function to allow users to quickly find specific information if the app or website contains a large amount of content.

Accessibility: Ensure that the IA is accessible to all users, including those with disabilities, by following best practices for accessibility in design.

Mobile IA plays a crucial role in the usability and user experience of a mobile app or website. A well-designed IA can help users find what they need quickly and efficiently, leading to higher user satisfaction and engagement.

PART C

(Answer all the Questions 1x10=10Marks)

13a **Elaborate on Mobile application medium types.**

Mobile applications can be categorized into different types based on the medium through which they deliver content and functionality. Here are some common types:

Native Apps: Native apps are developed for a specific platform, such as iOS or Android, using platform-specific programming languages (Swift or Objective-C for iOS, Java or Kotlin for Android). These apps can access the device's hardware and software features and offer the best performance and user experience. Examples include Facebook for iOS and Instagram for Android.

Web Apps: Web apps are accessed through a web browser and do not need to be downloaded or installed on the device. They are built using web technologies like HTML, CSS, and JavaScript and are responsive to different screen sizes. Web apps can be accessed on any device with a browser and an internet connection. Examples include Twitter's mobile web app.

Hybrid Apps: Hybrid apps are built using web technologies but are packaged as native apps. They can be distributed through app stores like native apps but use web views to display content. Hybrid apps can access some device features but may not offer the same performance as native apps. Examples include the Amazon Appstore and the Gmail app.

Progressive Web Apps (PWAs): PWAs are web apps that use modern web technologies to provide a native app-like experience. They can be installed on the device's home screen and can work offline. PWAs offer fast performance and can access some device features, making them a popular choice for mobile development. Examples include Twitter Lite and Pinterest.

Cross-Platform Apps: Cross-platform apps are developed using frameworks like React Native, Xamarin, or Flutter, which allow developers to write code once and deploy it to multiple platforms. These apps can access native features and offer near-native performance. Examples include Facebook Ads Manager and Alibaba.

AR/VR Apps: Augmented Reality (AR) and Virtual Reality (VR) apps use technology to enhance the user experience by overlaying digital content onto the real world (AR) or creating immersive virtual environments (VR). Examples include Pokémon GO (AR) and Oculus VR (VR).

Each type of mobile application medium has its advantages and disadvantages, and the choice of medium depends on factors such as the target audience, required features, development resources, and budget.

OR

13b **With neat diagram of mobile ecosystem,discuss its platforms and application frameworks.**

Mobile Ecosystem Overview: The mobile ecosystem consists of various components that work together to enable mobile computing and communication. At its core are the mobile devices themselves, including smartphones, tablets, and wearables. These devices run on different operating systems, each with its own ecosystem of apps and services. The mobile ecosystem also includes app stores, development tools, and the networks that connect devices to the internet.

Platforms: The two main platforms in the mobile ecosystem are Android and iOS.

Android: Developed by Google, Android is an open-source operating system used by many device manufacturers. It offers a high level of customization and flexibility for both users and developers. Android apps are primarily developed using Java or Kotlin.

iOS: Developed by Apple, iOS is a closed operating system exclusive to Apple devices. It is known for its smooth user experience and tight integration with Apple's hardware. iOS apps are developed using Swift or Objective-C.

Application Frameworks: Mobile app development frameworks provide developers with tools and libraries to simplify the development process. Some popular frameworks include:

React Native: Developed by Facebook, React Native allows developers to build cross-platform apps using JavaScript and React. It provides a native-like user experience and allows for code reuse across platforms.

Xamarin: Owned by Microsoft, Xamarin allows developers to build cross-platform apps using C# and .NET. It provides access to native APIs and UI controls, resulting in high-performance apps.

Flutter: Developed by Google, Flutter is a UI toolkit for building natively compiled applications for mobile, web, and desktop from a single codebase. It uses the Dart programming language and provides a rich set of customizable widgets.

These frameworks help developers create mobile apps more efficiently, allowing them to reach a broader audience across different platforms.

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(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)

Internal Assessment Test Answer Book

Name	Prem Kumar. N			**Year/ Semester/Section**	IV/VIII/A
Batch No.	8112161040 31	**Date/Session**	2.5.19	**Department**	CSE
Course code	CS6008	**Course Title**	HCI		
Internal Assessment Test	**IAT 1** ☐	**IAT 2** ☑	**IAT 3** ☐	**Model** ☐	
Name and Signature of the Invigilator with date		2/5/19			

Instruction to the Student: Put tick mark to the question attended in the column against question.

Part A			Part B / Part C						
Q. No.	✓	Marks	Q. NO.	✓	a Marks	✓	b Marks	Total Marks
1		2	11				12	12
2		2	12		11			11
3		2	13				13	13
4		2	14					
5		1	15					
6		0	16					
7		2					Total	36
8		1						
9		1						
10		2						
Total		15	51 Grand Total				Name and Signature of the Examiner with date	

To be filled by the examiner

Course Outcomes	1	2	3	4	5	6	Total
Marks allotted	30	30					60
Marks Obtained	15	36					51

IQAC Audit - Remarks

Name and Signature of the IQAC member

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INDRA GANESAN COLLEGE OF ENGINEERING

IG VALLEY, MANIDANDAM, TIRUCHIRAPPALLI – 620 012

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2022 – 2023 (ODD SEMESTER)

STUDENTS MARK STATEMENT- CO BASED
INTERNAL ASSESSMENT TEST-1

SUBJECT CODE &TITLE: CS6008- Human Computer Interaction

YEAR/SEM: IV/VI **MONTH & YEAR:** MAY & 2018

S.NO	REG NO	STUDENT NAME	COX (32)	COX (18)	TOTAL (50)	TOTAL (100)
1.	811215104001	Abhinaya. R	20	11	31	62
2.	811215104002	Abirami.A	21	12	33	66
3.	811215104003	Apporvavalli.A	4	7	11	22
4.	811215104004	Aravinth.B	24	13	37	74
5.	811215104005	Balaji.G	28	10	38	76
6.	811215104006	Balaji.G[29.1.98]	21	18	39	78
7.	811215104007	Barani Kumar.M	16	18	34	68
8.	811215104009	Denima.A	19	17	36	72
9.	811215104010	Dhurga Devi.M	18	12	30	60
10.	811215104013	Giridharani.S	19	11	30	60
11.	811215104014	Gokila.R	25	13	38	76
12.	811215104015	Gomathi.A	17	13	30	60
13.	811215104016	Hema.P	22	14	36	72
14.	811215104017	Hemasivasankari.S	26	14	40	80
15.	811215104018	Indhu.S	12	11	23	46
16.	811215104019	Indira.K.J	19	12	31	62
17.	811215104020	Kanaga Raj.P	23	10	33	66
18.	811215104021	Keerthana.R.R	17	14	31	62
19.	811215104022	Keerthana.S	25	16	41	82

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20.	811215104023	Mani Kandan.A	20	9	29	58
21.	811215104024	Mani Kandan.P	AB	AB	AB	AB
22.	811215104025	Meena.A	21	13	34	68
23.	811215104026	Murali.S	31	12	43	86
24.	811215104027	Narkis Banu.A	21	17	38	76
25.	811215104028	Nirosha.K	21	13	34	68
26.	811215104029	Pradeep.T	26	11	37	74
27.	811215104030	Praveen Kumar.V	17	16	33	66
28.	811215104031	Prem Kumar.N	15	15	30	60
29.	811215104032	Priya.M	24	11	35	70
30.	811215104033	Priyanga.P	28	14	42	84
31.	811215104034	Rajmohan.V	19	11	30	60
32.	811215104035	Ramalakshmi.M	16	14	30	60
33.	811215104036	Ramya.K	18	16	34	68
34.	811215104037	Roselin Lithveena.J	21	13	34	68
35.	811215104038	Sangeetha.I	31	12	43	86
36.	811215104039	Saranya.M	21	17	38	76
37.	811215104040	Shabika Banu.B	21	13	34	68
38.	811215104041	Subashree.M	26	11	37	74
39.	811215104042	Subathradevi.C	07	06	13	26
40.	811215104043	Suganya.S	05	04	09	18
41.	811215104044	Suhashini.R	24	01	25	50
42.	811215104047	Yogapriya.B	21	13	34	68
43.	811215104301	Annalakshmi.G	21	17	38	76
44.	811215104302	Rangeela.T	21	13	34	68

MARKS RANGE:

<20	20-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
1	2	0	2	7	15	13	4	0

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Total No.of Candidates Present	43
Total No.of Candidates Absent	1
Total No.of Students Pass	40
Total No. of Students Fail	3
Percentage of Pass	93 %

STAFF INCHARGE

HoD/CSE

PRINCIPAL

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