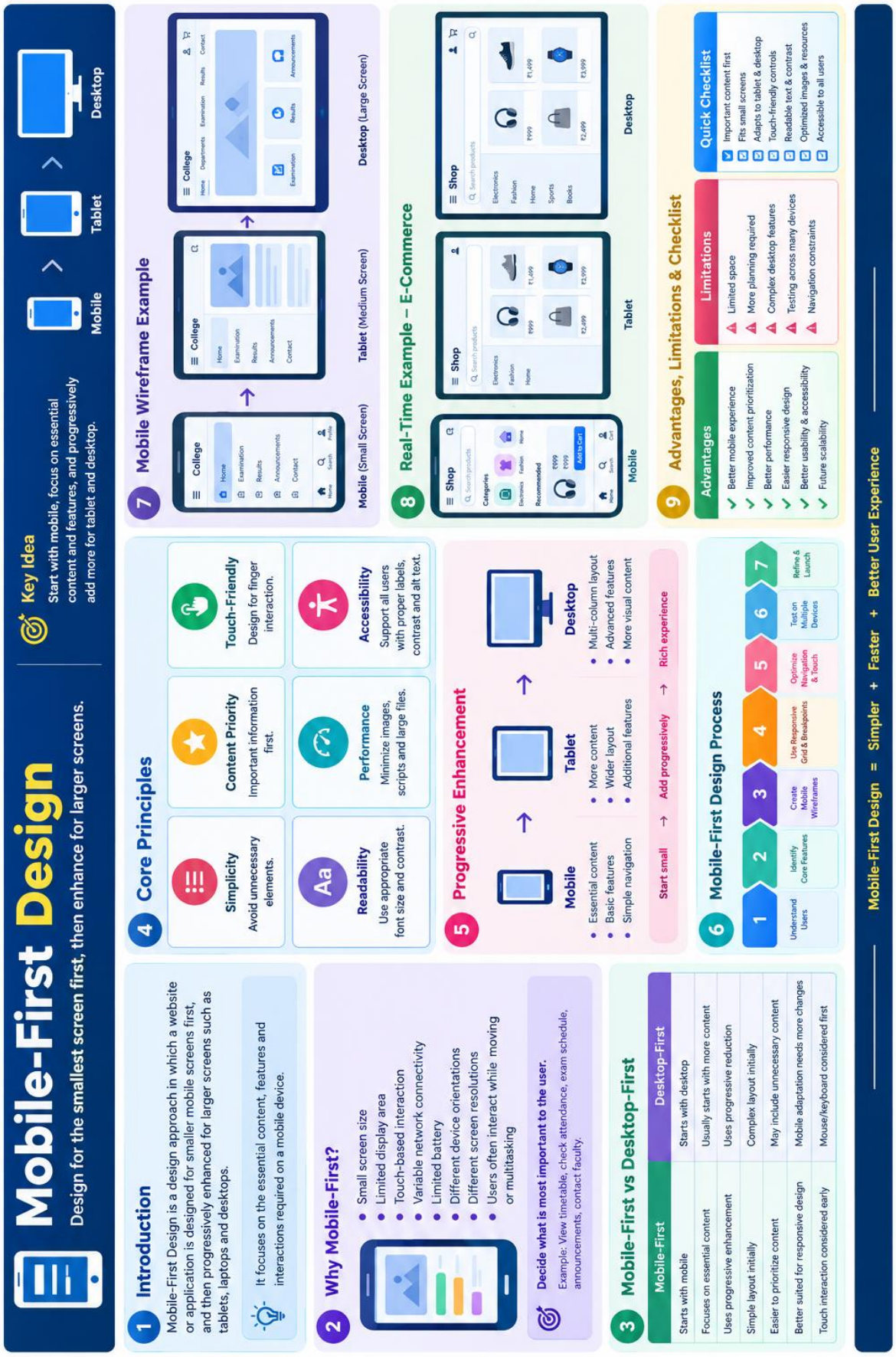
4.5. MOBILE FIRST DESIGN



1. Introduction

Mobile-First Design is a design approach in which a website is first designed for small screens like mobile phones and then adapted for larger screens like tablets, laptops and desktops.

Example: A shopping website is first designed for mobile phones and later adjusted for tablets and desktops.

2. Why Mobile-First Design?

1. Mobile screens are small.
2. Users interact using fingers.
3. Internet speed may vary.
4. Mobile devices have limited battery.
5. Different devices have different screen sizes.

Main Goal: To provide a simple and better user experience on mobile devices.

3. Core Principles

1. Simplicity: Avoid unnecessary elements.
2. Content Priority: Show important information first.
3. Touch-Friendly: Make buttons easy to touch.
4. Readability: Use clear and readable text.
5. Accessibility: Make the website usable by everyone.
6. Performance: Make the website load quickly.

4. Progressive Enhancement

Progressive Enhancement means starting with basic features for mobile devices and adding more features for larger screens.

- Mobile: Basic content and simple navigation.
- Tablet: More content and wider layout.
- Desktop: Multiple columns and advanced features.

5. Mobile-First Design Process

Step	Process
1	Understand user needs.
2	Identify important features.
3	Create mobile wireframes.

4 Use responsive grids.

5 Improve navigation and touch controls.

6 Test on different devices.

7 Refine and launch.

6. Real-Time Example – Shopping Website

- Mobile: Simple menu, product images and Add to Cart button.
- Tablet: More products and wider layout.
- Desktop: Multiple product columns and advanced filters.

7. Advantages

1. Better mobile experience.
2. Faster loading.
3. Simple design.
4. Easy navigation.
5. Better accessibility.

8. Limitations

1. Limited screen space.
2. More planning is required.
3. Some desktop features are difficult to adapt.
4. Testing on different devices is necessary.

4.6. RESPONSIVE DESIGN

1. Introduction

Responsive Design is a web design approach in which a website automatically adjusts its layout, images and content according to different screen sizes.

It works on mobile phones, tablets, laptops and desktops.

Example: A college website adjusts its layout automatically when opened on a mobile phone or computer.

2. Main Goal:

To provide a good user experience on all devices using a single website.

3. Key Principles

1. Fluid Grid: Use flexible layouts instead of fixed sizes.
2. Flexible Images: Adjust images according to screen size.
3. Flexible Media: Resize videos and other media.

4. Media Queries: Apply different CSS styles for different screen sizes.
5. Content Priority: Display important content first.
6. Touch-Friendly: Make buttons easy to tap.

4. How Responsive Design Works

1. Detect Screen Size: Identify the screen width.
2. Media Queries: Apply suitable CSS styles.
3. Adjust Layout: Change columns, images and menus.
4. Better UX: Provide a good experience on all devices.

5. Responsive Layout

Device	Example Screen Width	Layout
Mobile	Below 768px	Single column
Tablet	768px–1023px	Two columns
Desktop	1024px and above	Multiple columns

6. Responsive Breakpoints

A breakpoint is a screen width at which the website layout changes.

Example CSS:

```
/* Mobile */
.container {
  display: block;
}
/* Tablet */
@media (min-width: 768px) {
  .container {
    display: grid;
    grid-template-columns: repeat(2, 1fr);
  }
}
/* Desktop */
@media (min-width: 1024px) {
  .container {
    display: grid;
    grid-template-columns: repeat(3, 1fr);
```

```
  }
}
```

7. Responsive Design Process

Step	Process
1	Plan – Understand user needs.
2	Design – Create mobile wireframes.
3	Build – Use flexible grids and CSS.
4	Test – Check different devices.
5	Launch – Publish the website.

8. Real-Time Example – College Website

- Mobile: Simple menu and basic information.
- Tablet: Wider layout and more content.
- Desktop: Multiple columns, large images and advanced navigation.

9. Advantages

1. Works on all devices.
2. Better user experience.
3. Improves SEO.
4. Saves time and cost.
5. Easy maintenance.
6. Supports future devices.

10. Limitations

1. Requires more planning.
2. Complex implementation.
3. Testing on multiple devices is required.
4. Images need optimization.
5. Small screens may have navigation difficulties.

COMPARISON BETWEEN MOBILE FIRST DESIGN AND RESPONSIVE DESIGN:

MOBILE-FIRST DESIGN	RESPONSIVE DESIGN
Starts with mobile screens.	Adjusts to different screen sizes.
Focuses on essential content first.	Focuses on flexible layouts.
Adds features for larger screens.	Changes layout according to screen size.
Uses progressive enhancement.	Uses fluid grids and media queries.
Mobile is the starting point.	All screen sizes are considered.

Responsive Design

One website. Multiple devices. A seamless experience.

Key Idea

Responsive design creates a flexible layout that adapts to different screen sizes, resolutions and devices using fluid grids, flexible images and CSS media queries.

Mobile › Tablet › Laptop › Desktop

1 Introduction

Responsive Design is a web design approach that ensures a website or application looks and functions well on all devices and screen sizes. It uses flexible layouts, images and CSS media queries to adapt the content and structure automatically.

Main Goal

Provide a consistent and optimal user experience across all devices – mobile, tablet, laptop and desktop.

2 Why Responsive Design?

- Users access websites from multiple devices.
- Different screen sizes and resolutions.
- Improves user experience and accessibility.
- Reduces the need for separate mobile and desktop sites.
- Improves SEO (search engine ranking).
- Saves time and maintenance cost.

Same content. Same experience. Any device.

3 Key Principles

Fluid Grid Layouts
Use relative units (%, em, rem) instead of fixed pixels.

Flexible Images
Scale images to fit the container using max-width: 100%.

Media Queries
Apply different styles based on screen width or device features.

Flexible Media
Adapt videos, icons and other media to screen size.

Content Priority
Show important content first and adjust layout as needed.

Touch Friendly
Ensure buttons and interactive elements are easy to tap.

4 How It Works

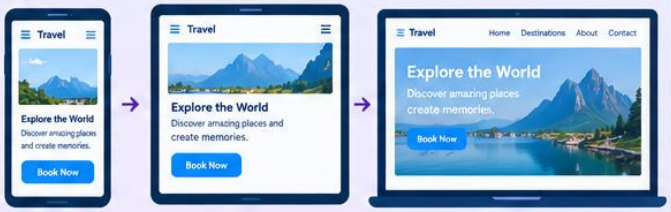
Detect Screen Size
Browser checks device width and orientation.

→ **CSS Media Queries**
Apply CSS rules based on breakpoints.

→ **Adjust Layout**
Content rearranges, images resize and menus change.

→ **Better UX**
Seamless experience on every device.

5 Responsive Layout Example



Mobile (≤ 767px) → Tablet (768px – 1023px) → Desktop (≥ 1024px)

6 Responsive Breakpoints

Mobile	Tablet	Desktop
< 768px	768px – 1023px	≥ 1024px

Example CSS

```css
/* Mobile first (default) */
.container {
    display: block;
    padding: 16px;
}

@media (min-width: 768px) {
  .container {
    display: grid;
    grid-template-columns: 1fr 1fr;
  }
}
@media (min-width: 1024px) {
  .container {
    grid-template-columns: repeat(4, 1fr);
  }
}
```

Remember

- Use breakpoints where content needs to change, not just device models.

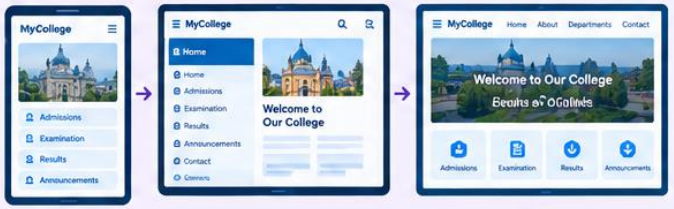
Common breakpoints:

- Mobile : < 768px
- Tablet : 768 – 1023px
- Desktop : ≥ 1024px

7 Responsive Design Process

1	2	3	4	5
Plan	**Design**	**Build**	**Test**	**Launch**
Understand users and goals	Create mobile first wireframes	Use flexible grids, media queries and CSS	Check on multiple devices & browsers	Ensure performance and monitor

8 Real-Time Example – College Website



Mobile (≤ 767px) → Tablet (768px – 1023px) → Desktop (≥ 1024px)

9 Advantages & Limitations

Advantages

- Works on all devices
- Better user experience
- Improves SEO
- Saves time and cost
- Flexible and scalable
- Future proof

Limitations

- Requires more planning
- Complex implementation
- Testing on multiple devices
- May affect performance if not optimized
- Complex navigation on small screens

10 Design Checklist

- [x] Use fluid grids and flexible images.
- [x] Implement media queries at proper breakpoints.
- [x] Ensure content is prioritized for smaller screens.
- [x] Check touch-friendly buttons and controls.
- [x] Test on multiple devices and browsers.
- [x] Optimize images and loading speed.
- [x] Ensure accessibility and good contrast.

Responsive Design = Flexible Layouts + Adaptive Content + Better User Experience