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Research Article

# Evaluating Web Accessibility and Feasibility of Indian Institutes of Management (IIMs) Websites

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## ABSTRACT

**Background:** Ensuring digital inclusion requires evaluating institutional web accessibility against established standards such as the Web Content Accessibility Guidelines (WCAG) 2.1, recognizing that web accessibility is a multidimensional issue that cannot be adequately captured by a single indicator. **Objectives:** This study aimed to assess the web accessibility and feasibility of the official websites of 22 selected Indian Institutes of Management (IIMs) with reference to WCAG 2.1. **Methodology:** A descriptive and evaluative research design was used to examine the selected institutional websites. Data were collected on 7 August 2026 using the WAVE Web Accessibility Evaluation Tool, focusing on accessibility errors, contrast errors, alerts, feature issues, structural issues, ARIA issues, and AIM scores. The data were systematically recorded and analyzed using descriptive statistical measures, including frequency, percentage, total, and mean. **Results:** The findings revealed considerable variation among the IIM websites across the evaluated indicators. IIM Visakhapatnam recorded the highest number of accessibility errors (119), whereas IIM Gaya recorded the lowest (2) but had the highest number of contrast errors (126). IIM Raipur showed the highest structural issues (385) and ARIA issues (1,426), and IIM Nagpur recorded the most alerts (285). For AIM scores, IIM Bangalore achieved the highest score (7.7), while IIM Gaya had the lowest (1.4). **Conclusion:** To strengthen inclusive and accessible digital services across IIM websites, regular WCAG-based auditing, manual verification, improved colour contrast, semantic structure, keyboard accessibility, screen-reader compatibility, and appropriate ARIA implementation are necessary.

**Keywords:** Digital Accessibility, IIM Websites, WAVE Tool, WCAG 2.1, Web Accessibility.

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## INTRODUCTION

The rapid expansion of digital education has made institutional websites an essential medium for disseminating academic information, facilitating communication, providing admission and examination services, and supporting interaction among students, faculty, researchers, and other stakeholders. Consequently, web accessibility has become an important dimension of website quality, ensuring that digital information and services can be accessed and used by people with diverse abilities and technological needs. Accessibility is particularly important for higher education institutions because their websites function as major gateways to academic programmes, learning resources, institutional services, and administrative information. However, previous studies have identified substantial accessibility barriers across educational, governmental, and institutional websites (Mounika *et al.*, 2019; Paul, 2023; Singh *et al.*, 2024). The Web Content Accessibility Guidelines (WCAG) developed by the World Wide Web Consortium (W3C) provide an internationally recognized framework for evaluating and improving web accessibility. WCAG 2.1, published as a W3C Recommendation in 2018, extends WCAG 2.0 while maintaining backward compatibility. It is structured around four fundamental principles Perceivable, Operable, Understandable, and Robust (POUR) supported by 13 guidelines and testable success criteria. The guidelines address important accessibility requirements including text alternatives, keyboard accessibility, sufficient time, navigable content, readable information, predictable operation, input assistance, and compatibility with assistive technologies. WCAG 2.1 defines three levels of conformance: Level A, Level AA, and Level AAA, with Level A representing the minimum level and Level AA providing a more comprehensive accessibility target (W3C, 2018). WCAG 2.1 also introduced additional criteria addressing mobile accessibility, low vision, and cognitive and learning disabilities (W3C, 2025).

Existing research demonstrates the relevance of WCAG-based assessment in the Indian context. Panda and Chakravarty (2020) evaluated IIT library websites using WCAG 2.1 and examined

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conformance levels, severity, and responsibility for accessibility problems. Similarly, Singh *et al.* (2024) investigated educational websites using WCAG 2.0, highlighting the continuing need to identify and address accessibility barriers in educational environments. Mounika *et al.* (2019) also demonstrated the importance of accessibility evaluation across major Indian websites. Paul (2023), in an assessment of 65 Indian e-government websites using WCAG 2.1, reported considerable accessibility deficiencies, including failures at the minimum Level A conformance level. The methodological dimension of accessibility assessment has also received attention. Kumar *et al.* (2021) compared ten WCAG evaluation tools and demonstrated that automated tools can identify important accessibility problems, although no single tool can capture every aspect of accessibility. Boyalakuntla *et al.* (2021) developed WAccess as a WCAG-oriented accessibility evaluation tool, while Ara and Sik-Lanyi (2025) examined automated evaluation of webpage accessibility issues. Rahman (2025) further explored automated accessibility evaluation using machine-learning techniques. Chatziemmanouil and Katsanos (2024) emphasized the importance of improving understanding and practical application of WCAG 2.1 through interactive learning. Comparative methodological research has also examined WCAG-based digital assessment approaches (Pilski, 2026; Thammachokmongkol *et al.* (2025) further demonstrated the relevance of WCAG 2.1 for university platforms and e-learning systems, particularly for students with visual impairments.

Despite these contributions, limited attention has been given to the systematic evaluation of web accessibility across the websites of Indian Institutes of Management (IIMs). As premier management institutions, IIMs depend extensively on their websites for admissions, academic programmes, research activities, institutional communication, and access to administrative information. Ensuring that these digital platforms are accessible to users with diverse abilities is therefore essential for promoting inclusive and equitable access to higher education. Against this background, the present study undertakes a WCAG 2.1-based assessment of IIM websites to identify accessibility barriers, examine their conformance with established accessibility requirements, and determine priority areas for improvement. The study further seeks to assess the feasibility of improving website accessibility through evidence-based recommendations, thereby contributing to more inclusive, usable, and accessible digital platforms in Indian higher education.

## REVIEW OF LITERATURE

Web accessibility assessment has increasingly become an important area of research, particularly in higher education, where institutional websites serve as major gateways to academic, administrative, and informational services. Early research established WCAG 2.0 as a systematic framework for identifying accessibility barriers. Al-Khalifa (2012) developed a semi-automatic accessibility evaluation system based on WCAG 2.0, demonstrating the potential of automated approaches for identifying accessibility violations. Similarly, Windriyani *et al.* (2014) applied WCAG 2.0 within a webometric-based assessment of Sebelas Maret University, indicating the relevance of accessibility as a component of institutional website evaluation. Debevc *et al.* (2015) combined WCAG 2.0 with heuristic evaluation to assess educational web pages, highlighting the value of integrating guideline-based and usability-oriented assessment approaches. Accessibility research in higher education has subsequently expanded. Arasid *et al.* (2018) examined Indonesian higher-education websites using WCAG 2.0 and identified accessibility issues that could restrict equitable access to online institutional information. Nagaraju *et al.* (2019) adopted a practitioner-oriented approach to understanding WCAG 2.0 accessibility challenges, emphasizing practical difficulties involved in implementing accessibility requirements. Alsaeedi (2020) compared web accessibility evaluation tools and proposed frameworks for assessing webpage accessibility, demonstrating that automated tools can provide valuable evidence for systematic evaluation, although tool outputs may differ.

The transition from WCAG 2.0 to WCAG 2.1 has further broadened accessibility considerations. Shah (2023) examined the transition of design systems from WCAG 2.0 to WCAG 2.1 and emphasized the need to incorporate updated accessibility requirements into contemporary digital systems. Shah (2023) also investigated the use of accessibility tools for WCAG 2.1 migration, reinforcing the importance of systematic and tool-supported assessment. Romero (2024) evaluated educational platforms under WCAG 2.1, while Niño-Vega *et al.* (2022) assessed Colombian university websites according to WCAG 2.1, demonstrating the continuing relevance of accessibility evaluation within higher education. More recent work has also moved toward WCAG 2.2-based assessment, as demonstrated by MITRE and BACI (2025). Collectively, these studies establish WCAG-based assessment as an effective approach for examining institutional website accessibility. However, comparatively limited research has systematically assessed the accessibility of Indian Institutes of Management (IIMs) websites using WCAG 2.1. The present study therefore addresses this gap by evaluating IIM websites against WCAG 2.1 requirements and identifying accessibility problems, conformance-related issues, and priority areas for improvement.

## OBJECTIVES

The study was undertaken with the following objectives:

- To evaluate and compare the web accessibility and feasibility of the selected Indian Institutes of Management (IIM) websites using relevant accessibility indicators and assessment tools.

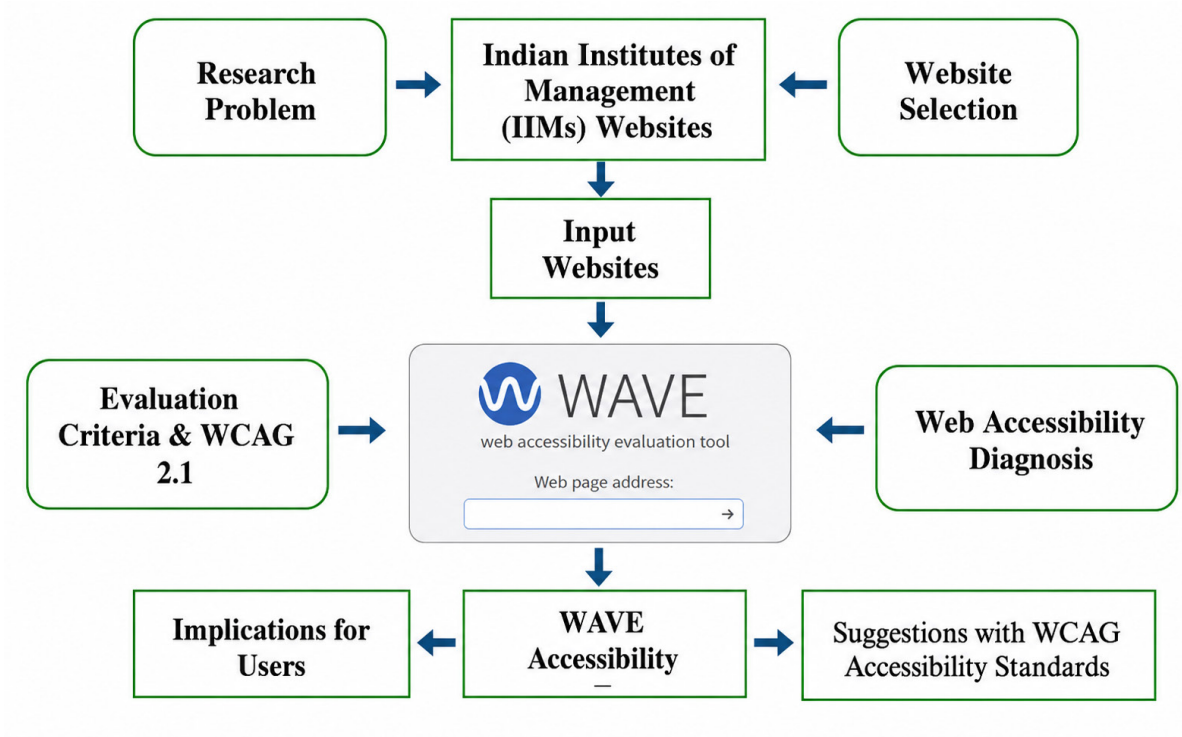
- To identify and analyse major web accessibility issues, including errors, contrast errors, alerts, feature issues, structural issues, and ARIA issues, with reference to WCAG 2.1 Success Criteria.
- To formulate WCAG-based recommendations for improving the accessibility, usability, inclusiveness, and digital access of IIM websites, particularly for users with disabilities.

## METHODOLOGY

The study adopts a descriptive and evaluative research design (Framework:1) to assess the web accessibility and feasibility of selected Indian Institutes of Management (IIMs) websites. The official websites of the selected IIMs were identified and evaluated as the primary data sources. Data collection and website evaluation were conducted on 7 August 2026 using the WAVE Web Accessibility Evaluation Tool. The assessment was based on the Web Content Accessibility Guidelines (WCAG) 2.1, considering its four fundamental principles: Perceivable, Operable, Understandable, and Robust (POUR). WAVE reports were examined to identify accessibility errors, contrast errors, alerts, features, structural elements, and other relevant accessibility indicators. The collected data were systematically recorded, organized, and analysed using MS Excel, while MS Word was used for documentation, tabulation, interpretation, and presentation of the research findings. Descriptive statistical measures such as frequency, percentage, total, and mean were used for comparative analysis. The identified accessibility issues were interpreted in relation to their potential implications for users, and appropriate recommendations were proposed based on relevant WCAG 2.1 standards.

### Data Collection and Analysis

Table 1 presents the sample institutions and their official websites selected for the present study, which constitute the primary units of analysis for evaluating the web accessibility and feasibility of Indian Institutes of Management (IIMs) websites. A total of 22 IIMs and their respective official websites were included in the study to provide a broad institutional representation for the comprehensive WCAG 2.1-based assessment. The selected IIM websites represent institutions located across different geographical regions of India, covering states and Union Territories such as West Bengal, Gujarat, Karnataka, Uttar Pradesh, Kerala, Meghalaya, Chhattisgarh, Rajasthan, Maharashtra, Tamil Nadu, Punjab, Bihar, Odisha, Assam, and others. This geographical diversity provides a suitable basis for examining variations in website accessibility and feasibility across institutions operating in different regional contexts. For this study, each official IIM website is considered an individual unit of analysis. The websites serve as the primary digital interfaces through which students, researchers, faculty members, administrators, prospective learners, and other users access institutional information and services. Their evaluation is therefore important for determining the extent to which these websites support accessible and feasible digital interaction. The selected websites will be systematically examined using WCAG 2.1-based accessibility criteria and




**Framework 1:** Research Design.

web accessibility evaluation tools to identify accessibility barriers, errors, warnings, structural issues, and other relevant characteristics. Thus, Table 1 establishes the sample framework and website dataset for the subsequent accessibility evaluation, comparative analysis, and recommendations of the study.

Figure 1 presents the distribution of web accessibility errors across the 22 Indian Institutes of Management (IIMs). The findings reveal considerable variation in the accessibility performance of the IIM websites. IIM Visakhapatnam recorded the highest number of errors (119), indicating a comparatively greater need for accessibility improvement. IIM Calcutta ranked second with 73 errors, followed by IIM Raipur (53), IIM Ranchi (49), and IIM Sambalpur (43). Moderate levels of errors were observed for IIM Rohtak (40), IIM Lucknow (36), IIM Mumbai (33), IIM Kozhikode (32), and IIM Amritsar (31). In contrast, IIM Gaya recorded the lowest number of errors (2), followed by IIM Bangalore (3) and IIM Nagpur (4), suggesting relatively better accessibility performance. IIM Ahmedabad also demonstrated a low error count of 10. Overall, the findings indicate substantial differences in web accessibility among the IIM websites, highlighting the need for systematic accessibility testing, regular monitoring, and compliance with established accessibility standards such as WCAG.

Figure 2 presents the distribution of web accessibility contrast errors across the 22 IIM websites. The results show substantial variation among the institutions. IIM Gaya recorded the highest number of contrast errors (126), followed by IIM Mumbai (102) and IIM Ranchi (65). IIM Shillong also reported a relatively high number of errors (62), while IIM Sambalpur (50), IIM Guwahati (41), IIM Raipur (37), and IIM Lucknow (36) showed considerable contrast-related accessibility issues. Moderate numbers were observed for IIM Kashipur (30), IIM

**Table 1: Indian Institutes of Management (IIMs) with their websites.**

| Sl. No. | Institute | Established | Location | State/UT | NIRF Ranking 2025 | Website |
|---|---|---|---|---|---|---|
| 1. | IIM Calcutta | 1961 | Kolkata | West Bengal | 7 | https://www.iimcal.ac.in |
| 2. | IIM Ahmedabad | 1961 | Ahmedabad | Gujarat | 1 | https://www.iima.ac.in |
| 3. | IIM Bangalore | 1973 | Bengaluru | Karnataka | 2 | https://www.iimb.ac.in |
| 4. | IIM Lucknow | 1984 | Lucknow | Uttar Pradesh | 5 | https://www.iiml.ac.in |
| 5. | IIM Indore | 1996 | Indore | Madhya Pradesh | 8 | https://www.iimidr.ac.in |
| 6. | IIM Kozhikode | 1996 | Kozhikode | Kerala | 3 | https://www.iimk.ac.in |
| 7. | IIM Shillong | 2007 | Shillong | Meghalaya | 38 | https://www.iimshillong.ac.in |
| 8. | IIM Raipur | 2010 | Raipur | Chhattisgarh | 15 | https://www.iimraipur.ac.in |
| 9. | IIM Ranchi | 2010 | Ranchi | Jharkhand | 18 | https://www.iimranchi.ac.in |
| 10. | IIM Rohtak | 2010 | Rohtak | Haryana | 19 | https://www.iimrohtak.ac.in |
| 11. | IIM Kashipur | 2011 | Kashipur | Uttarakhand | 23 | https://www.iimkashipur.ac.in |
| 12. | IIM Tiruchirappalli | 2011 | Tiruchirappalli | Tamil Nadu | 16 | https://www.iimtrichy.ac.in |
| 13. | IIM Udaipur | 2011 | Udaipur | Rajasthan | 21 | https://iimu.ac.in/ |
| 14. | IIM Amritsar | 2015 | Amritsar | Punjab | 64 | https://www.iimamritsar.ac.in |
| 15. | IIM Bodh Gaya | 2015 | Bodh Gaya | Bihar | 31 | https://www.iimbg.ac.in |
| 16. | IIM Nagpur | 2015 | Nagpur | Maharashtra | 25 | https://www.iimnagpur.ac.in |
| 17. | IIM Sambalpur | 2015 | Sambalpur | Odisha | 34 | https://www.iimsambalpur.ac.in |
| 18. | IIM Sirmaur | 2015 | Sirmaur district | Himachal Pradesh | 51 | http://www.iimsirmaur.ac.in |
| 19. | IIM Visakhapatnam | 2015 | Visakhapatnam | Andhra Pradesh | 29 | https://www.iimv.ac.in |
| 20. | IIM Jammu | 2016 | Jammu | Jammu and Kashmir | 35 | https://www.iimj.ac.in |
| 21. | IIM Mumbai | 1963 | Mumbai | Maharashtra | 6 | http://www.iimmumbai.ac.in |
| 22. | IIM Guwahati | 2025 | Guwahati | Assam | Not available | https://www.iimg.ac.in/ |

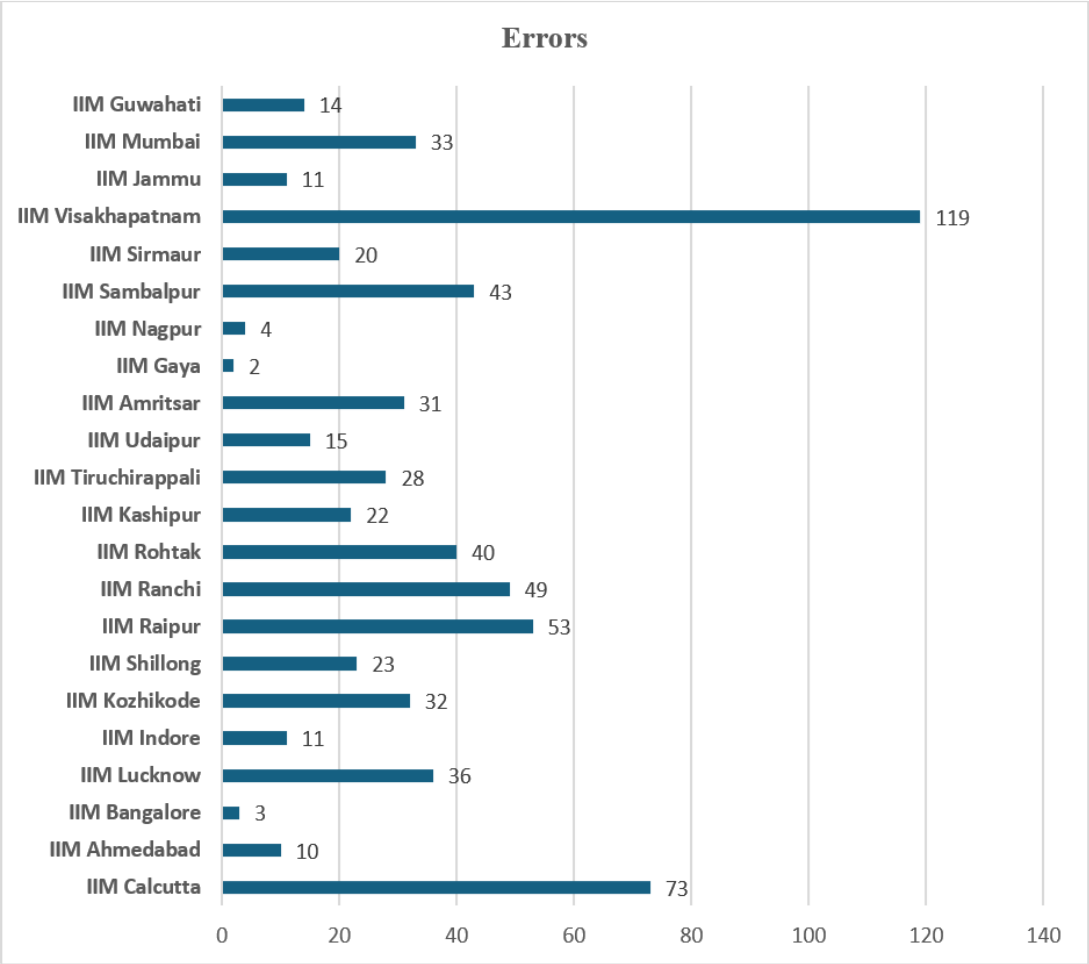



**Figure 1:** Web Accessibility Errors.

Tiruchirappalli (26), IIM Rohtak (20), IIM Jammu (17), and IIM Calcutta and IIM Visakhapatnam (16 each). In contrast, IIM Ahmedabad, IIM Bangalore, and IIM Amritsar recorded only 2 errors each, representing the lowest levels. IIM Udaipur also demonstrated a low count of 3 errors. Overall, the findings indicate that contrast accessibility remains a significant concern for several IIM websites, potentially affecting users with visual impairments. These results emphasize the need for improved colour contrast, readable text, and compliance with WCAG contrast requirements.

Figure 3 presents the distribution of web accessibility alerts identified across the 22 IIM websites. The findings indicate considerable variation in the number of alerts among the institutions. IIM Nagpur recorded the highest number of alerts (285), followed by IIM Raipur (259) and IIM Lucknow (254). Other institutions with comparatively high alert counts include IIM Visakhapatnam (173), IIM Calcutta (165), IIM Kashipur (152), IIM Gaya (133), and IIM Bangalore (115). Moderate levels were observed for IIM Amritsar and IIM Sirmaur (90 each), IIM Jammu (83), IIM Rohtak (75), and IIM Shillong (72). In contrast, IIM Indore recorded the lowest number of alerts (20), followed by IIM Kozhikode (29), IIM Guwahati (32), and IIM Udaipur (33). The substantial differences suggest that some IIM websites require greater attention to potential accessibility concerns identified by the evaluation tool. However, alerts generally indicate issues requiring manual review or further investigation rather than confirmed accessibility violations. Therefore, the findings should be interpreted as indicators for subsequent accessibility assessment and remediation.

Figure 4 presents the distribution of web accessibility feature issues identified across the 22 IIM websites. The results demonstrate substantial variation among the institutions. IIM Sambalpur recorded the highest number of feature issues (239), followed by IIM Raipur (156), IIM Shillong (126), and IIM Indore (123). Relatively high numbers were also observed for IIM Calcutta (83), IIM Visakhapatnam (74), IIM Kashipur and IIM Tiruchirappalli (70 each), and IIM Ranchi (67). Moderate levels were reported for IIM Gaya (65), IIM Sirmaur (58), IIM Nagpur (47), and IIM Mumbai (45). In contrast, IIM Guwahati recorded the lowest number of feature issues (21), while IIM Kozhikode and IIM Amritsar reported 28 each. IIM Lucknow (31), IIM Ahmedabad (33), IIM Bangalore (34), and IIM Udaipur (35) also showed comparatively lower counts. Overall, the findings indicate notable differences in the implementation of accessibility-related website

features. The high counts observed for several IIM websites suggest a need for systematic examination and improvement of accessibility features to enhance usability and inclusiveness for diverse users.

Figure 5 presents the distribution of web accessibility structural issues across the 22 IIM websites. The findings reveal considerable variation in the number of structural issues identified. IIM Raipur recorded the highest number (385), substantially exceeding all other institutions, indicating comparatively greater structural accessibility concerns. It was followed by IIM Mumbai (161), IIM Bangalore (153), IIM Visakhapatnam (155), and IIM Nagpur (149). Other relatively high counts were observed for IIM Sambalpur (131), IIM Calcutta (120), IIM Amritsar (110), IIM Ahmedabad (103), IIM Kozhikode (102), and IIM Tiruchirappalli (101). Moderate levels were found for IIM Shillong (97), IIM Ranchi (94), IIM Kashipur (86), and IIM Lucknow (71). In contrast, IIM Guwahati recorded the lowest number of structural issues (29), followed by IIM Indore (32), IIM Gaya (40), and IIM Udaipur (47). Overall, the findings demonstrate substantial differences in the structural accessibility of IIM websites. The higher counts indicate areas requiring closer examination of page structure, semantic organization, headings, navigation, and other underlying elements to improve accessibility and overall usability.

Figure 6 presents the distribution of web accessibility ARIA issues identified across the 22 IIM websites. The findings demonstrate substantial variation in the number of ARIA-related issues among the institutions. IIM Raipur recorded the highest number of ARIA issues (1,426), followed by IIM Nagpur (705), IIM Sambalpur (699), and IIM Ranchi (610). These exceptionally high values indicate comparatively greater concerns regarding the implementation or accessibility of ARIA attributes and related interactive elements. IIM Calcutta (363) and IIM Amritsar (323) also recorded relatively high numbers, followed by IIM Mumbai (226) and IIM Shillong (182). Moderate levels were observed for IIM Gaya (172), IIM Visakhapatnam (167), IIM Kashipur (163), IIM Udaipur (117), and IIM Tiruchirappalli (112). In contrast, IIM Kozhikode recorded the lowest number of ARIA issues (7), followed by IIM Rohtak (10), IIM Ahmedabad (21), and IIM Sirmaur (23). Overall, the findings reveal a pronounced disparity in ARIA implementation across the IIM websites. The institutions with higher numbers of ARIA issues should undertake detailed accessibility audits to ensure that ARIA roles, states, properties, and interactive components are correctly implemented and compatible with assistive technologies.

Figure 7 presents the AIM scores of the 22 IIM websites. The results show considerable variation in accessibility performance. IIM Bangalore recorded the highest AIM score (7.7), followed

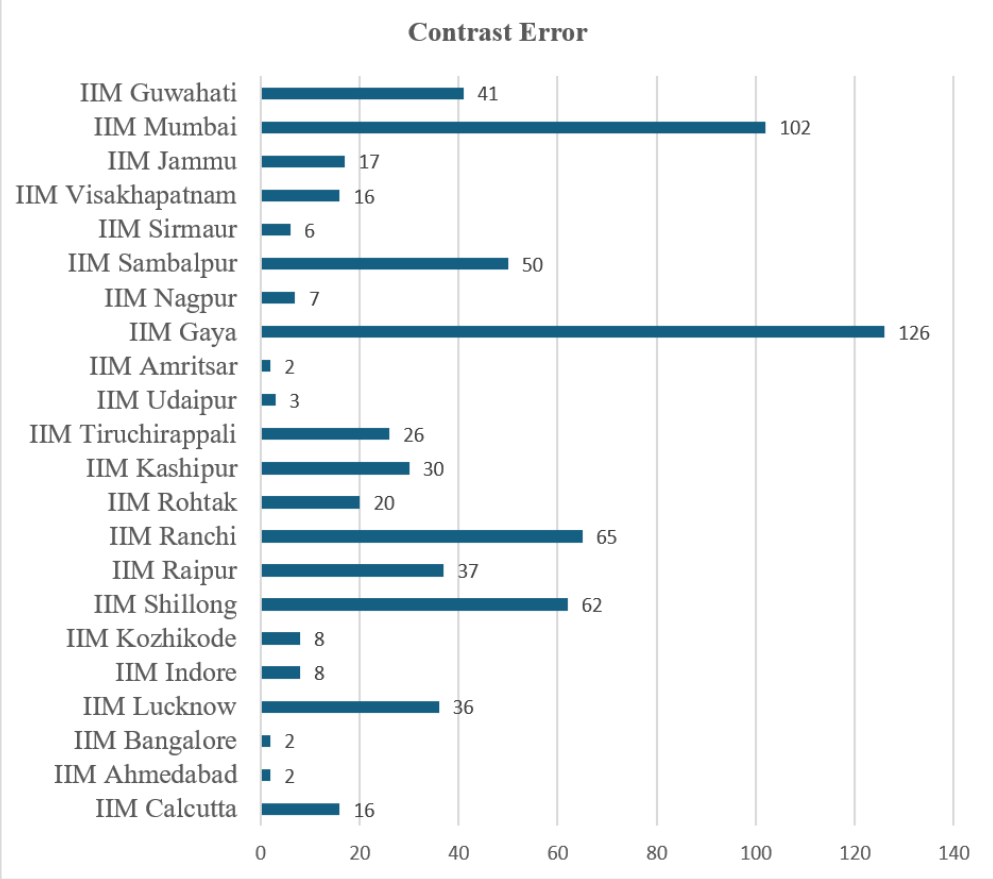



**Figure 2:** Web Accessibility Contrast Errors.

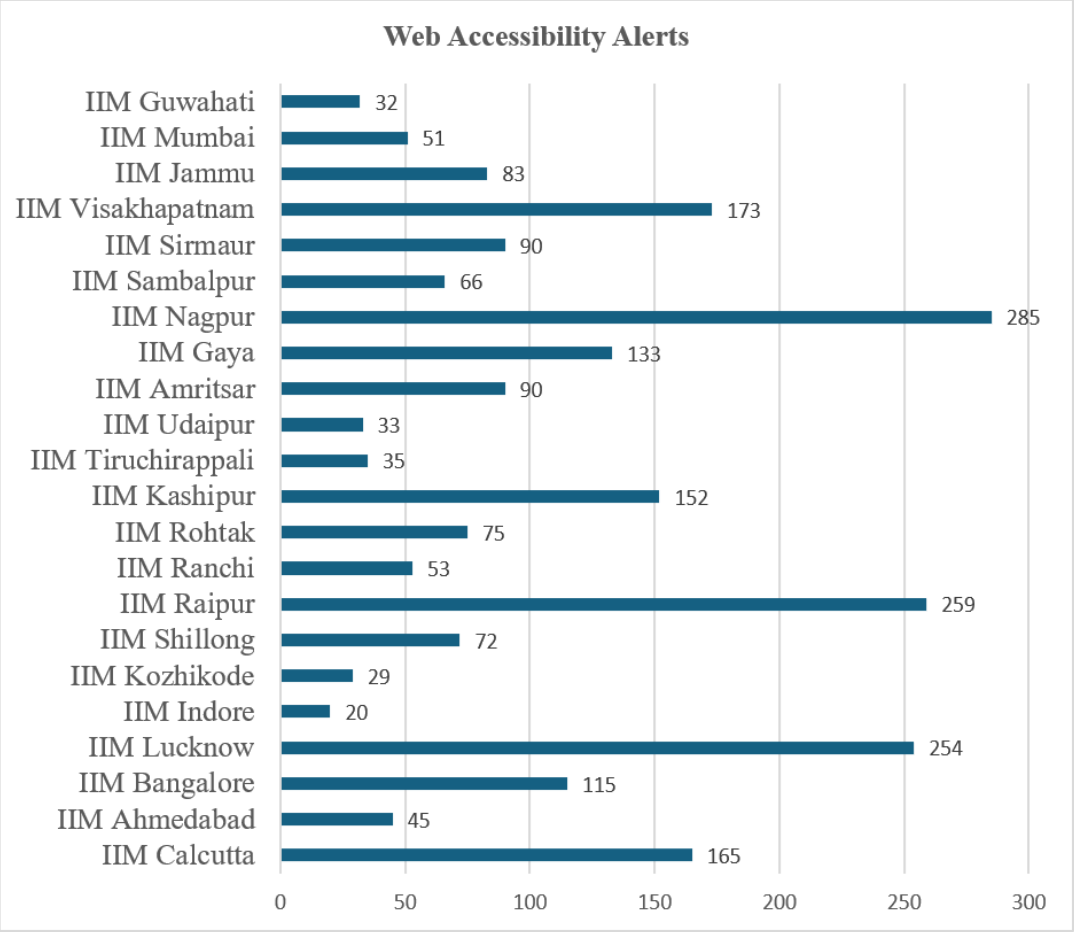



**Figure 3:** Web Accessibility Alerts.

by IIM Ahmedabad and IIM Nagpur (7.0 each), indicating comparatively stronger accessibility performance according to the AIM metric. IIM Udaipur (6.5) and IIM Indore (6.3) also achieved relatively high scores, while IIM Sirmaur (5.3) and IIM Jammu (5.0) demonstrated moderate performance. IIM Kozhikode and IIM Amritsar both recorded 4.4, followed by IIM Tiruchirappalli (4.0). Lower scores were observed for IIM Calcutta and IIM Raipur (3.4 each), IIM Rohtak (3.3), IIM Kashipur (3.1), IIM Shillong and IIM Sambalpur (3.0 each), and IIM Guwahati (2.9). IIM Gaya recorded the lowest AIM score (1.4), followed by IIM Mumbai (1.5) and IIM Visakhapatnam (1.6), indicating comparatively poorer accessibility performance. Overall, the findings reveal substantial disparities among the IIM websites, highlighting the need for targeted accessibility improvements, particularly for institutions with lower AIM scores.

## Findings

The findings of the study reveal substantial differences in the web accessibility performance of the 22 selected IIM websites. The analysis of accessibility errors, contrast errors, alerts, feature issues, structural issues, ARIA issues, and AIM scores indicates that accessibility is a multidimensional phenomenon and that no single indicator can adequately represent the overall accessibility condition of a website. The results provide both quantitative evidence of accessibility barriers and broader insights into the technical and functional quality of institutional websites. The analysis of web accessibility errors shows that IIM Visakhapatnam recorded the highest number of errors (119), followed by IIM Calcutta (73), IIM Raipur (53), and IIM Ranchi (49). In contrast, IIM Gaya recorded only 2 errors, while IIM Bangalore and IIM Nagpur recorded 3 and 4 errors, respectively. This wide variation suggests that accessibility problems are not evenly distributed among the institutions. However, the contrast-error findings present a different pattern. IIM Gaya, despite having the lowest number of general accessibility errors, recorded the highest number of contrast errors (126), followed by IIM Mumbai (102) and IIM Ranchi (65). This indicates that a lower overall error count does not necessarily imply comprehensive accessibility. The analysis of accessibility alerts identified particularly high values for IIM Nagpur (285), IIM Raipur (259), and IIM Lucknow (254), while IIM Indore recorded the lowest number (20). These findings indicate that several websites contain elements requiring further examination. Since alerts may represent potential concerns rather than confirmed accessibility violations, their interpretation requires manual verification. This highlights the importance of combining automated assessment with expert evaluation.

The accessibility feature issues further demonstrate differences in website implementation. IIM Sambalpur recorded the highest number of feature issues (239), followed by IIM Raipur (156), IIM Shillong (126), and IIM Indore (123), whereas IIM Guwahati recorded the lowest (21). These variations suggest differences in the implementation of accessibility-related features and indicate that some websites may require greater attention to functional accessibility and user interaction. A similar pattern was observed for structural issues. IIM Raipur recorded the highest number (385), followed by IIM Mumbai (161), IIM Visakhapatnam (155), IIM Bangalore (153), and IIM Nagpur (149). IIM Guwahati recorded the lowest value (29). These results suggest that structural organization, semantic elements, headings, navigation, and related technical components vary considerably among the websites and may influence the ease with which users locate and understand information. The ARIA assessment produced the most pronounced variation. IIM Raipur recorded 1,426 ARIA issues, followed by IIM Nagpur (705), IIM Sambalpur (699), and IIM Ranchi (610), whereas IIM Kozhikode recorded only 7. Such large differences indicate considerable variation in the use and implementation of ARIA-related elements. This finding is particularly important because inappropriate ARIA implementation can affect interaction with assistive technologies and potentially create barriers for users with disabilities. The AIM scores provide an additional perspective on overall accessibility performance. IIM Bangalore achieved the highest score (7.7), followed by IIM Ahmedabad and IIM Nagpur (7.0 each), IIM Udaipur (6.5), and IIM Indore (6.3). Conversely, IIM Gaya recorded the lowest score (1.4), followed by IIM Mumbai (1.5) and IIM Visakhapatnam (1.6). Interestingly, the AIM ranking does not correspond directly with the ranking of individual accessibility issues. This demonstrates that high performance in one accessibility dimension does not necessarily translate into high overall accessibility performance. Overall, the findings establish that accessibility across the IIM websites is heterogeneous, multidimensional, and technically complex. The results demonstrate that some institutions perform well in particular areas while experiencing significant problems in others. Therefore, accessibility should be assessed through a combination of quantitative indicators, manual validation, and user-centred evaluation rather than through a single measure. The findings emphasize the need for continuous accessibility

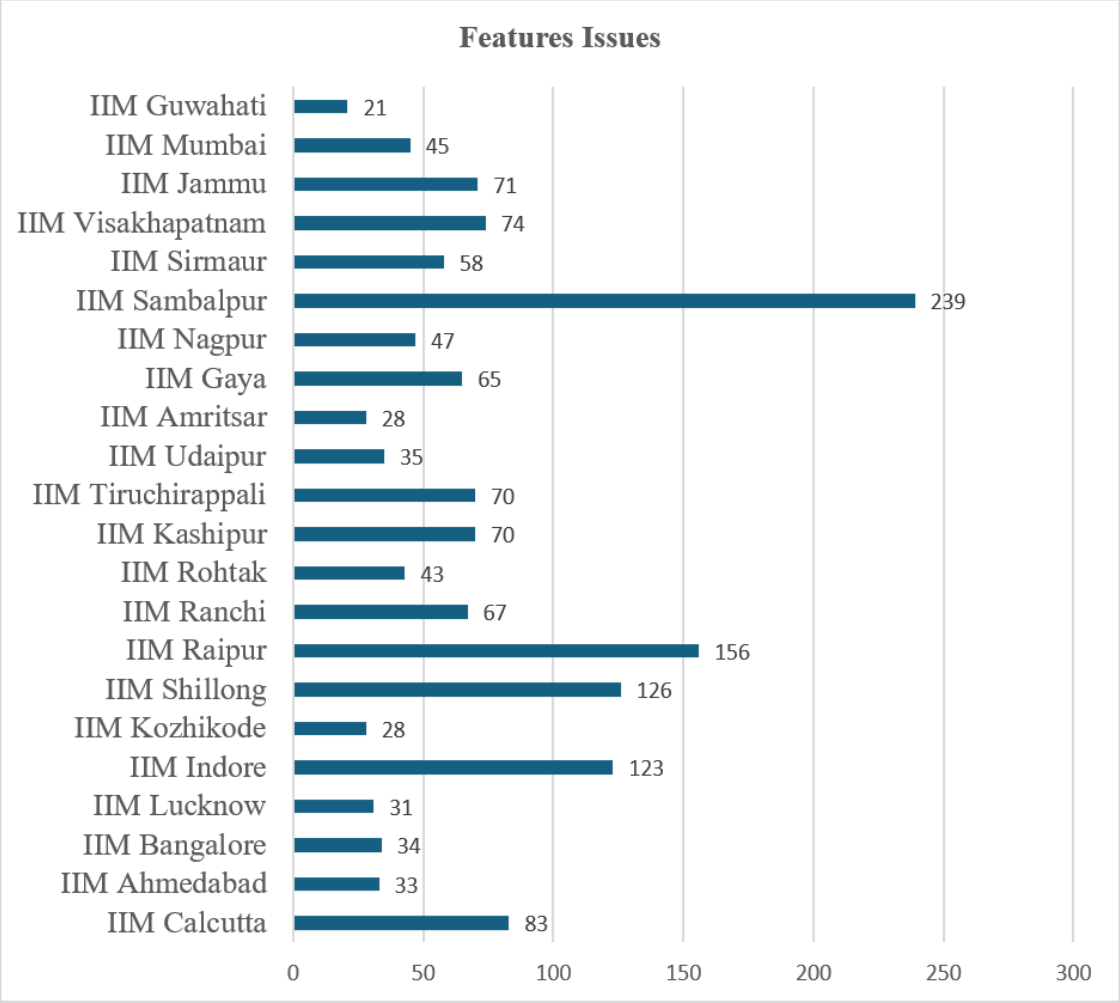



**Figure 4:** Web Accessibility Features Issues.

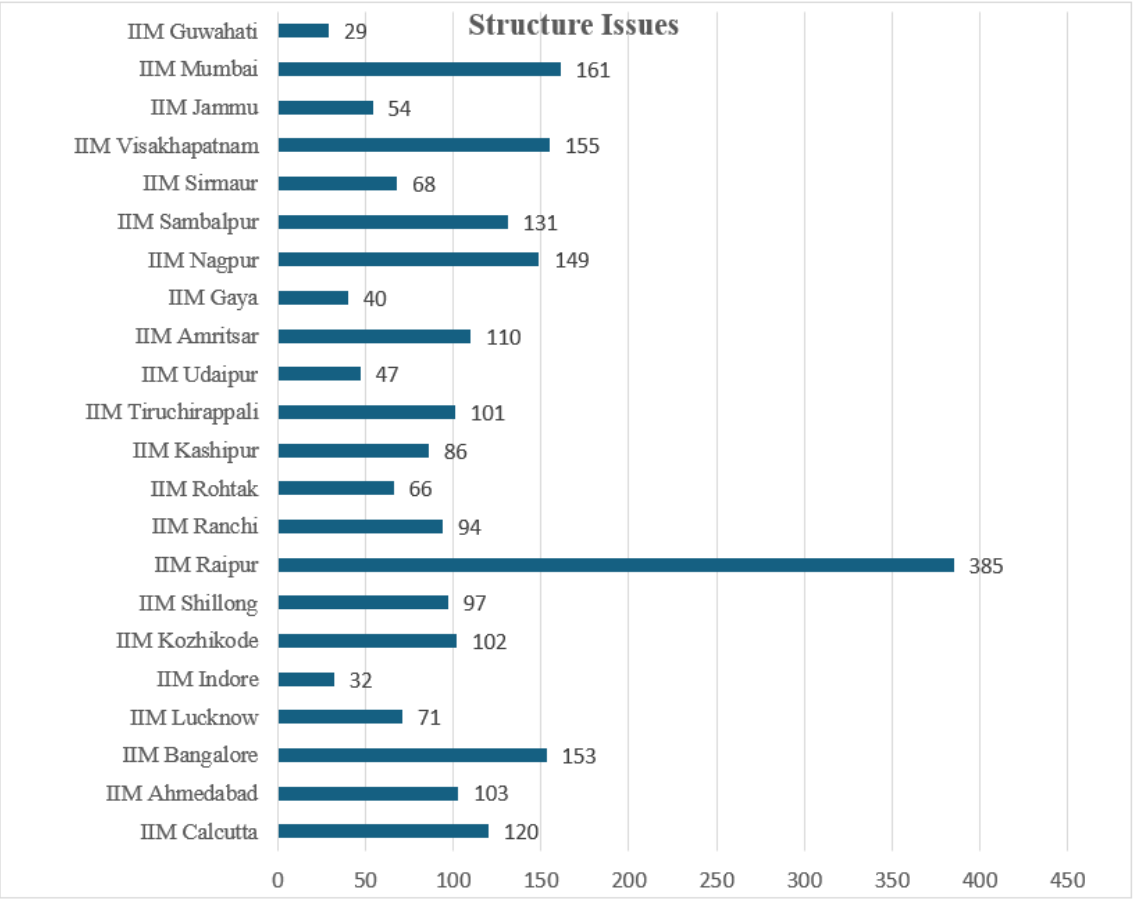



**Figure 5:** Web Accessibility Structural Element Issues.

auditing, WCAG-based remediation, appropriate colour contrast, improved semantic structure, correct ARIA implementation, accessible interactive features, and periodic monitoring. Such an integrated approach would strengthen the accessibility, usability, inclusiveness, and practical effectiveness of IIM websites for students, researchers, faculty members, staff, prospective applicants, and users with disabilities.

## IIM Website Accessibility: WCAG 2.1-Based Improvement Priorities

Table 2 presents the WCAG-based accessibility improvement priorities and institution-specific recommendations for the 22 IIM websites. The findings demonstrate that accessibility concerns differ considerably among the institutions and therefore require institution-specific remediation strategies rather than a uniform approach. The recommendations were formulated by relating the observed accessibility findings to relevant WCAG 2.1 Success Criteria. The results indicate that IIM Raipur and IIM Visakhapatnam require the most immediate attention. IIM Raipur shows particularly high levels of ARIA issues (1,426), structural issues (385), alerts (259), and errors (53), while IIM Visakhapatnam records the highest number of general errors (119) and a low AIM score (1.6). These institutions should undertake comprehensive technical accessibility audits, with priority given to confirmed WCAG violations, semantic structure, keyboard accessibility, and assistive-technology compatibility. IIM Nagpur, IIM Sambalpur, and IIM Ranchi also require substantial technical improvement, particularly in ARIA implementation. IIM Nagpur records 705 ARIA issues and 285 alerts, while IIM Sambalpur records 699 ARIA issues and the highest number of feature issues (239). IIM Ranchi records 610 ARIA issues and 65 contrast errors. These findings suggest the need for systematic review of interactive components, ARIA roles, states and properties, keyboard operation, and colour contrast. Visual accessibility is a major priority for IIM Gaya and IIM Mumbai. IIM Gaya records the highest number of contrast errors (126) and the lowest AIM score (1.4), whereas IIM Mumbai records 102 contrast errors, 161 structural issues, and a low AIM score (1.5). Particular attention should therefore be given to WCAG 1.4.3 and 1.4.11. In contrast, IIM Bangalore, IIM Ahmedabad, and IIM Udaipur demonstrate comparatively favorable performance, reflected in their low error levels and higher AIM scores. For these institutions, the emphasis should be on maintaining existing practices and conducting periodic WCAG testing to prevent accessibility regression. Overall, the table demonstrates that WCAG-based remediation should be prioritized according to the type, magnitude, and potential impact of accessibility problems. Regular automated testing should be supplemented with manual

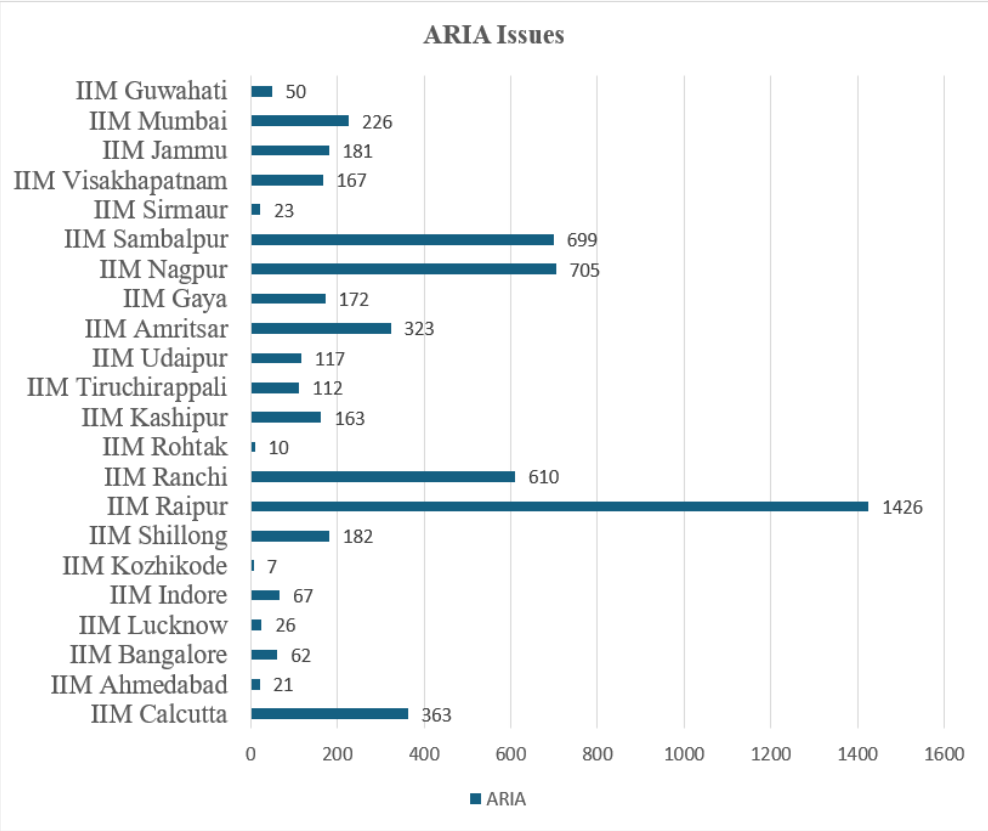



**Figure 6:** Web Accessibility ARIA Issues.

**Table 2: Recommended WCAG-Based Accessibility Improvement Priorities for IIM Websites.**

| IIMs | Major Finding | Priority Area | Relevant WCAG 2.1 Success Criteria | Recommended Suggestion |
|---|---|---|---|---|
| IIM Calcutta | High errors (73), structural issues (120), ARIA issues (363) | Errors and ARIA | 1.1.1, 1.3.1, 4.1.2 | Correct confirmed accessibility errors, improve semantic structure, and review ARIA roles, states and properties. |
| IIM Ahmedabad | Low errors (10) and contrast errors (2); high AIM (7.0) | Maintain and refine | 1.4.3, 2.4.6, 4.1.2 | Maintain current accessibility practices and conduct periodic WCAG testing to prevent regression. |
| IIM Bangalore | Very low errors (3), contrast errors (2), high AIM (7.7) | Maintain best practices | 1.3.1, 2.1.1, 4.1.2 | Use the existing performance as a benchmark and continue keyboard, structural and assistive-technology testing. |
| IIM Lucknow | High alerts (254), errors (36) | Manual verification | Relevant SC after verification | Manually review alerts, identify genuine WCAG failures, and prioritize confirmed Level A and AA issues. |
| IIM Indore | High feature issues (123), but low errors (11) and low alerts (20) | Accessibility features | 2.1.1, 2.4.3, 4.1.2 | Test menus, buttons, forms and interactive components using keyboard and assistive technologies. |
| IIM Kozhikode | Low ARIA issues (7), but contrast errors (8) and feature issues (28) | Visual accessibility | 1.4.3, 1.4.11 | Review colour contrast and non-text contrast while maintaining its comparatively strong ARIA implementation. |
| IIM Shillong | High contrast errors (62), feature issues (126), ARIA issues (182) | Visual and functional accessibility | 1.4.3, 1.4.11, 4.1.2 | Improve colour contrast and review interactive components and ARIA implementation. |

| IIMs | Major Finding | Priority Area | Relevant WCAG 2.1 Success Criteria | Recommended Suggestion |
|---|---|---|---|---|
| IIM Raipur | Very high errors (53), alerts (259), structural issues (385), ARIA issues (1,426) | Critical technical remediation | 1.3.1, 2.1.1, 4.1.2 | Conduct a comprehensive technical audit, prioritize ARIA remediation, correct structural problems and perform manual assistive-technology testing. |
| IIM Ranchi | High errors (49), contrast errors (65), ARIA issues (610) | ARIA and contrast | 1.4.3, 1.4.11, 4.1.2 | Correct contrast failures and conduct detailed ARIA validation for interactive components. |
| IIM Rohtak | Low contrast errors (20), low ARIA issues (10), structural issues (43) | Structural refinement | 1.3.1, 2.4.6 | Improve semantic structure, headings and labels while maintaining comparatively low ARIA issues. |
| IIM Kashipur | Alerts (152), contrast errors (30), structural issues (86), ARIA issues (163) | Multiple-area remediation | 1.4.3, 1.3.1, 4.1.2 | Review alerts manually, improve contrast and strengthen semantic and ARIA implementation. |
| IIM Tiruchirappalli | Alerts (35), structural issues (101), ARIA issues (112) | Structure and ARIA | 1.3.1, 2.4.6, 4.1.2 | Improve heading hierarchy, landmarks, navigation and ARIA implementation. |
| IIM Udaipur | High AIM (6.5), low errors (15), low contrast errors (3) | Maintain and optimize | 1.4.3, 2.4.7 | Maintain strong accessibility performance and conduct periodic keyboard and focus testing. |
| IIM Amritsar | Errors (31), feature issues (28), contrast errors only 2, ARIA issues (323) | ARIA | 4.1.2, 2.1.1 | Prioritize ARIA validation and ensure that interactive components expose appropriate names, roles, states and values. |
| IIM Gaya | Very low errors (2), but highest contrast errors (126), lowest AIM (1.4) | Contrast and overall impact | 1.4.3, 1.4.11 | Give immediate attention to colour contrast and reassess the website after remediation using manual and automated testing. |
| IIM Nagpur | High alerts (285), ARIA issues (705), feature issues (47), AIM (7.0) | Alerts and ARIA | 4.1.2, 4.1.3 | Manually validate alerts and undertake detailed ARIA testing despite the relatively high AIM score. |
| IIM Sambalpur | Highest feature issues (239), very high ARIA issues (699) | Features and ARIA | 2.1.1, 4.1.2 | Review interactive features and ARIA implementation; prioritize keyboard and screen-reader compatibility. |
| IIM Sirmaur | Low errors (20), low contrast errors (6), ARIA issues (23), AIM (5.3) | Preventive improvement | 1.3.1, 2.1.1, 4.1.2 | Maintain performance through periodic WCAG testing and preventive accessibility monitoring. |
| IIM Visakhapatnam | Highest errors (119), high structural issues (155), low AIM (1.6) | Critical accessibility remediation | 1.1.1, 1.3.1, 2.1.1, 4.1.2 | Conduct a comprehensive audit focusing on confirmed errors, structural accessibility, keyboard operation and assistive-technology compatibility. |
| IIM Jammu | Errors (11), contrast errors (17), structural issues (71), AIM (5.0) | Structural improvement | 1.3.1, 2.4.6, 1.4.3 | Improve semantic structure, headings and contrast while maintaining the comparatively moderate accessibility performance. |
| IIM Mumbai | Contrast errors (102), structural issues (161), ARIA issues (226), low AIM (1.5) | Contrast and technical structure | 1.4.3, 1.4.11, 1.3.1, 4.1.2 | Prioritize contrast correction, structural remediation and ARIA validation, followed by comprehensive reassessment. |
| IIM Guwahati | Low alerts (32), feature issues (21), structural issues (29), AIM (2.9) | Overall optimization | 1.3.1, 2.4.6, 2.1.1 | Maintain low issue levels while improving overall accessibility through semantic, navigation and keyboard testing. |

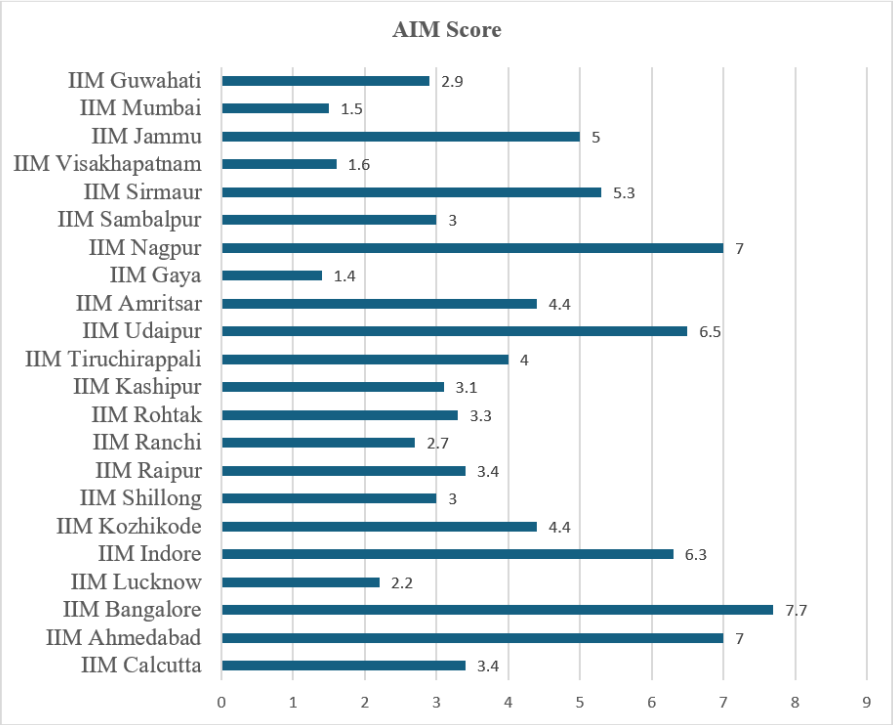



**Figure 7:** Web Accessibility AIM (Accessibility Impact Metric) Score.

evaluation, keyboard testing, screen-reader testing, and periodic reassessment. This approach can support the development of more accessible, inclusive, and user-centred IIM websites.

## Implications for Users with Visual Disabilities

Reduced Text and Content Readability: High contrast errors, particularly at IIM Gaya (126), IIM Mumbai (102), IIM Ranchi (65), and IIM Shillong (62), may make text, links, buttons, and other visual elements difficult to perceive for users with low vision or colour-vision deficiencies.

Screen-Reader Navigation Barriers: Structural issues may make it difficult for screen-reader users to understand webpage organization, headings, sections, and relationships between different content elements.

ARIA and Assistive-Technology Problems: The very high ARIA issues at IIM Raipur (1,426), IIM Nagpur (705), IIM Sambalpur (699), and IIM Ranchi (610) may affect how screen readers interpret roles, states, properties, and interactive components.

Difficulty in Keyboard-Based Interaction: Inaccessible menus, buttons, forms, links, and interactive elements may restrict independent navigation for users who rely on keyboards and screen readers.

Restricted Access to Institutional Services: Accessibility barriers may affect independent access to admission information, academic resources, examination notices, research information, recruitment details, online forms, and other essential institutional services.

Need for WCAG-Based Inclusive Design: The findings emphasize the need for continuous WCAG-based testing, sufficient colour contrast, meaningful alternative text, logical heading structures, accessible forms, keyboard compatibility, and correct ARIA implementation to ensure equitable digital access for users with visual disabilities.

# CONCLUSION

The study concludes that the web accessibility and feasibility of the websites of the 22 selected Indian Institutes of Management (IIMs) vary considerably across different accessibility dimensions. The comprehensive assessment of accessibility errors, contrast errors, alerts, feature issues, structural issues, ARIA issues, and AIM scores demonstrates that accessibility performance cannot be adequately represented through a single indicator. Each website exhibits a distinct combination of strengths and weaknesses that influences the overall accessibility experience. The findings indicate that IIM Bangalore, IIM Ahmedabad, and IIM Udaipur demonstrate comparatively favourable accessibility performance in several dimensions, while IIM Raipur, IIM Visakhapatnam, IIM Mumbai, and IIM Gaya require greater attention in specific areas. IIM Raipur shows particularly high ARIA and structural issues, while IIM Visakhapatnam records the highest number of general accessibility errors. IIM Gaya and IIM Mumbai demonstrate significant contrast-related concerns and comparatively low AIM scores. These variations confirm that accessibility improvement requires institution-specific strategies rather than a common remedial approach.

The study further establishes the importance of evaluating websites against WCAG 2.1 Success Criteria. The observed problems relating to colour contrast, semantic structure, keyboard accessibility, alternative text, interactive components, and ARIA implementation may create barriers for users with disabilities, particularly users who depend on screen readers, keyboard navigation, or visual accessibility features. Therefore, compliance with WCAG should be considered an integral component of institutional website development and maintenance. The study also emphasizes that automated accessibility tools provide valuable diagnostic information but cannot independently establish complete WCAG conformance. Manual verification, keyboard testing, screen-reader testing, and user-centred evaluation are necessary to validate automated findings and identify barriers that automated tools may not detect. Overall, the study demonstrates that web accessibility is an ongoing process rather than a one-time technical activity. IIMs should establish continuous accessibility monitoring, periodic WCAG audits, systematic remediation procedures, accessible design practices, and developer-level accessibility training. Implementing these measures can improve the usability, inclusiveness, digital equity, and practical effectiveness of IIM websites and help ensure that institutional information and online services are accessible to all users, including persons with disabilities.

## ABBREVIATIONS

**AIM:** Accessibility Impact Metric; **ARIA:** Accessible Rich Internet Applications; **IIM:** Indian Institutes of Management; **POUR:** Perceivable, Operable, Understandable, and Robust; **W3C:** World Wide Web Consortium; **WCAG:** Web Content Accessibility Guidelines.

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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