

## Effectiveness Analysis of e-Governance Implementation for Training: A Case Study of National Academy for Educational Management

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### *Abstract:*

Information and Communication Technology (ICT) is chronologically playing important role in our personal lives and also private and government organizations including the educational sector to reshape their activities. Govt. of Peoples Republic of Bangladesh is going to establish Digital Bangladesh. But it is concerned that there are some absence of implementation of e-Governance at every institute especially at all educational and training institute like NAEM who provides training to all types of secondary and higher secondary level institutes. It is suggested that the teachers must be equipped themselves with the modern ICT based tools and techniques of teaching. The aim of this research study was to review the present ICT based facilities in NAEM campus and training classes, to study the online training management system for effective training and to study e-service delivery system facilities. This research study also tried to find the existing laps and gaps of e-Governance issues in NAEM for the formulation of an effective training strategy. Descriptive case study and questioner method were adopted to conduct the research study. Majorly this was a case study hence data have been collected visiting NAEM campus from observation, primary and secondary sources. Findings majorly shown, 61% trainees were not happy with internet download speed in lab. In campus, 94% trainees were not happy with Wi-Fi speed. This research study recommended 24 suggestions to improve e-governance in NAEM campus on the basis of findings. By proper implementation of these findings and respected recommendations NAEM can be benefited to improve the training activities of NAEM campus and can be champion at e-Governance implementation.

**Keywords:** NAEM, ICT, Digital Bangladesh, e-Governance, Training, Case Study, e-service, Online, Descriptive, Observation, Wi-Fi, Recommendation

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## **I. INTRODUCTION**

### ***1.1 Background of the Research***

Information and Communication Technology (ICT) is chronologically playing important role in our personal lives and also private and government organizations including the educational sector to reshape activities. This research study is aiming to infuse e-Governance issues across training systems. Teachers are widely believed to be the key agents for educational and social changes. Hence, this study focuses on effectiveness of the uses of ICT facilities in the National Academy for Educational Management (NAEM) campus and training. Globalization and the knowledge-based economy are leaving no choices for education systems worldwide but to adopt ICT and weave it into educational sector. The outcome of this study will recommend enriching e-governance application in NAEM campus and training activities.

### ***1.2 Statement of the Problem***

Govt. of Peoples Republic of Bangladesh is going to establish Digital Bangladesh. The absence of implementation of e-Governance at every institute especially at all educational and training institute like NAEM who provides training to all types of secondary and higher secondary level institutes is a big concern. It is suggested that the teachers must be equipped themselves with the modern tools and techniques of teaching. The effectiveness of a training depends on the dissemination of all acquired knowledge and skilled to trainees. Through this research we want to find out the following key points.

1. ICT facilities in NAEM
2. Facilities in class room
3. Standard power point presentation process for each session
4. Network Support
5. Presence of e-Services

This research will try to study the existing laps and gaps of e-Governance issues in NAEM for the formulation of an effective training strategy.

### ***1.3 Rational of the study***

All of the participants expect interactive class. All of the trainings information should be preserved at the central server. To provide better services to the participant, NAEM campus should be equipped with e-Governance tools. This type of case study will help to find the laps and gaps in existing situation so that NAEM would be enriched to be a center of excellent in training in the country.

We observed list of research title of NAEM previous year research titles and found that 14 researches have been conducted on ICT issues. All of 14 researches were done targeting problems of School, Collage and Madrasha education ICT area. None research was done addressing the problem of e-Governance in NAEM. It is the age of modernization. The entire training institute in Bangladesh is going to be ready to compete with each other to becoming a leading training institute. NAEM is also with this pace. I this moment NAEM should conduct research to find out its problems and leaking in e-Governance issues and at the same time try to implement the recommendations that from the research. So, this research is will be very rationale for the time.

### ***I.4 Objective of the Study***

The general object of the study is to evaluate the effectiveness and usefulness of the e-Governance in NAEM. The specific objectives are:

1. To review the present ICT based facilities in NAEM campus and training classes.
2. To study the online training management system for effective training.
3. To study E-service delivery system facilities.

## **II. LITERATURE REVIEW**

### ***II.1 E-Governance***

Although the term ‘e-Governance’ has gained currency in recent years, there is no standard definition of this term. Different governments and organizations define this term to suit their own aims and objectives. Sometimes, the term ‘e-government’ is also used instead of ‘e-Governance’. Some widely used definitions are listed below:

E-Governance is the effective use of Information & Communication Technology (ICT) to improve the system of governance that is in place, and thus provide better services to the Citizens.

E-Governance is the implementation and delivery of government services through the information communication technology to provide Transparent, Effective, Efficient, Responsive and Accountable governance to the society.

According to the World Bank [6] “E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/ or cost reductions.”

### ***II.2 ICT***

Information and Communication Technology (ICT) extensive to the term Information Technology (IT).By this, raw data processed by computer system and conveyed by network channel to disseminate meaningful information. In training, ICT is now being used as prime tools to presents lectures to be more enjoyable and effective.

There is another definition of ICT which is “ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focus primarily on communication technologies. This includes the Internet, wireless network, cell phones, and other communication mediums.” ICT tools are hardware, software, network and database.

### ***II.3 Use of ICT in Training***

It refers the use of ICT tools and techniques in training. Basically it is used to improve or to facilitate a better training. Generally computer, Multimedia projector, internet service, local area network, router,

relevant software, etc. are used in training. ICT is treated as an effective instrument for the improvement and reform of educational and training sector.

#### ***II.4 e-Services***

The concept of e-service (short for electronic service) represents one prominent application of utilizing the use of information and communication technologies (ICTs) in different areas. However, providing an exact definition of e-service is hard to come by as researchers have been using different definitions to describe e-service. Despite these different definitions, it can be argued that they all agree about the role of technology in facilitating the delivery of services which make them more of electronic services [1].

#### ***II.5 Wi-Fi***

Wi-Fi is the name of a popular wireless networking technology that uses radio waves to provide wireless high-speed Internet and network connections. A common misconception is that the term Wi-Fi is short for "wireless fidelity" [5].

#### ***II.6 Networking***

A network is a group of two or more computer systems linked together through a communication channel to share resources. There are many types of computer networks, including the following:

- Local-Area Networks (LANs): The computers are geographically close together (that is, in the same building).
- Wide-Area Networks (WANs): The computers are farther apart and are connected by telephone lines or radio waves.
- Campus-Area Networks (CANs): The computers are within a limited geographic area, such as a campus or military base.
- Metropolitan-Area Networks (MANs): A data network designed for a town or city.
- Home-Area Networks (HANs): A network contained within a user's home that connects a person's digital devices [4].

#### ***II.7 MIS***

Management Information Systems is used broadly in various contexts and includes but is not limited to: decision support systems, resource and people management applications, project management, and database retrieval applications.

#### ***II.8 Web Based Application Software***

Web applications are popular due to the ubiquity of web browsers and the convenience of using a web browser as a client to update and maintain web applications without distributing and installing software on potentially thousands of client computers is a key reason for their popularity, as is the inherent support for cross-platform compatibility. Common web applications include webmail, online retail sales, online auctions, wikis, instant messaging services and many other functions [2].

#### ***II.9 Online Training System***

A learning management system (LMS) is a software application for the administration, documentation, tracking, reporting and delivery of electronic educational technology (also called e-learning) courses or training programs [3].

### ***II.10 NAEM at a Glance***

National Academy for Educational Management (NAEM) [7] is an apex institution under the Ministry of Education entrusted with the responsibility of training heads of educational institutions and education functionaries. In addition, it provides foundation training to the new entrants of Bangladesh Civil Service (Education) Cadre Officers. It offers courses on education management, planning and administration, conducts educational research and provides policy support to the Ministry of Education. The Director General (DG) is the chief executive of NAEM. 4 Directors, 7 Deputy Directors, 16 Assistant Directors, 26 Training Specialists, 9 other Officers and 78 Staff to run the academic and administrative activities support him. The Academy conducts six basic training courses as priority basis. These are (a) Foundation Training Course for BCS Education (General & Technical) Cadre Officers (b) Senior Staff Course on Education and Management (SSCEM) for Professors of different subjects (C) Advance Course on Education and Management (ACEM) for Associate Professors of different subjects of different government colleges (d) Educational Administration and Management Course for Principals and Heads of Secondary and Higher level institutions (e) Educational Research Methodology Course for selected members of BCS Education (General & Technical) Cadre Officers and (f) Education Planning and Development Training Course.

### ***II.11 Case Study***

Case study is very popular research method [8]. Case study helps to analyze specify issues within the boundaries of specific environment, situation or organization. There are 3 types of case study method.

1. Explanatory (Answers to 'How' & 'Why' )
2. Descriptive (Discover the key phenomena)
3. Exploratory (Answers to 'What' or 'Who')

In this research Study, descriptive case study method has been adopted. Described case study again divided by 3 types [9]

1. Observational method
2. Case study method
3. Survey method

## **III. RESEARCH METHODOLOGY**

### ***III.1 Study Design***

Descriptive Case study and questioner method were adopted to conduct the research study. Majorly this was a case study hence data have been collected visiting NAEM Campus. The survey using questionaries' both Structured and Unstructured has also been conducted keeping in view with the objectives of the study. The questionnaires have been administered with the ICT experts. The secondary data have been collected through document study reviewing the relevant literatures. Stratified sampling method was used to select the faculties and participants for the purpose of survey.

### ***III.2 Scope of the Study***

NAEM Campus

- Data center/ MIS/Server Room
- Class Rooms
- Auditorium
- Computer and Language Labs
- Whole campus Wi-Fi/LAN network facilities
- Faculties
- Participants of existing and previous training courses

### ***III.3 Sampling Design***

- a. It was a case study, hence NAEM campus different places has been selected for the purpose of observation. Observation places were:
  - Academic Building
  - 5 Dormitory Buildings
  - 3 Computer Labs ( Each has 25 computers )
  - 2 Cafeteria buildings
  - Administration Building
  - Lobby
  - Medical Centers
  - Library
  - 2 Language Labs
- b. To meet up the answer for questionnaire part, we considered following two sample also:
  - Faculty- 23
  - Participants- 40 (Present (Feb'2017) participants and immediate past participants from Sylhet, Chittagong and Rajshahi division were interrogated)

### ***III.4 Data Collection Method***

#### ***III.4.1 Data Source***

*Primary:*

- Observation (NAEM Campus)
- Interview (NAEM Faculties)
- Interview (NAEM Training Participants)

*Secondary:*

- Course Brochure
- NAEM Website
- Training Calendar
- Annual Report
- Souvenir



### ***III.4.2 Observation***

To observe the NAEM campus e-governance, Observations were made on 4 aspects and stated here by Part A, Part B, Part C and Part D.

**Table I:** Area of observation

<b>Part</b>	<b>Observation Observation</b>
A	of online training management system
B	Observation of Class Room, Auditorium, Seminar Hall and Lab support.
C	Observation of campus infrastructure and networking system
D	Observation of library

### ***III.4.3 Questionnaire***

#### ***III.4.3.1 Faculty***

The questionnaire (Annexure – 6) has two sections. Section one contains the questions to collect basic and demographical information of the respondents. Section two comprises of 12 questions. Questions were both structured and semi-structured. Around 11 questions were close ended and 1 question was open ended to answer. Respondents were interviewed with the written questionnaire. All questions were made carefully to achieve objects.

#### ***III.4.3.2 Participants***

The questionnaire (Annexure – 5) has two sections. Section one contains the questions to collect basic and demographical information of the respondents. Section two comprises of 7 questions. Questions were both structured and semi-structured. Around 5 questions were close ended and 2 questions were open ended to answer. Respondents were interviewed with the written questionnaire. All questions were made carefully to achieve objects.

### ***III.4.4 Pretesting Questionnaire***

After developing the questions an initiative was taken by the research team to pretest the questionnaire. Randomly 5 respondents both faculty and participants were interviewed and some questions were fine-tuned in according to their feedback.

## **IV. DATA ANALYSIS AND FINDINGS**

### ***IV.1 Demographic Information***

Observations and survey of this research has been conducted inside the NAEM campus during the data collection period. Present participants of the different training courses were interviewed. But some participants were also interviewed who were from Sylhet, Rajshahi and Chittagong division. Total 40 participants were interviewed.

### ***IV.2 Gender of the Respondent***

The study interviewed 23 faculties and 40 participants as respondents in total. Among the faculties 43% were male and 57% female. Among the participants 85% were male and 15% female.

### ***IV.3 Respondents Statistics***

It is mentioned earlier that data were collected from 40 participants as respondents. Participants were from different training courses of NAEM and training of the year were from 2016 to 2017. Participants were from NAEM campus, Rajshahi, Sylhet and Chittagong Division.

**Table II: Respondents Statistics (Participants)**

<b>Course Name</b>	<b>Total</b>
Foundation Training Course (148th batch)	20
31th Planning and Development Course	10
20th Advance Course on Education and Management	10

### ***IV.4 Findings***

Findings are divided by two parts. One is the case study observation and other is the survey.

#### ***IV.4.1 Case Study Observation***

##### ***IV.4.1.1 Observation of Online Training Management System***

Research team members visited NAEM campus and tried to know about online training management system. Training is the core job of NAEM. So training management should be ICT based. But we observed that there is no any central web based online application software by which training activities could be maintained. NAEM has only 1 (one) server. NAEM has 1 mobile based apps but it is old, outdated and practically not used now a days.

Speaker Evaluation Information, Speaker Resource Pool information are preserved in computer but not all management at Relational Data Base Management System (RDBMS).

NAEM has no Campus Display System (CDS) to monitor Classroom, Auditorium, Administration and department wise major activities. This type of display system helps to view everyday activities of NAEM. It is helpful for Participants, NAEM faculties and also for visitors.

##### ***IV.4.1.2 Observation of Class Room Support***

Research team members visited classroom, auditorium and seminar hall. Team observed that:

- All class room had multimedia projector but not all are good. About 15 multimedia projectors are working but 10 are defective so slides are not shown clearly.
- There is no external document camera attached with class room PC. This is very essential to show any page, document at projector during lecture.
- There are electronic white boards at class rooms. But observed that these are not used by faculty and defective also.
- Observed that there is no any Optical Mark Reader (OMR). It is very much essential to take MCQ at running session.
- There is 1 VCS system. Sometimes it is using. VCS uses in session conducts are limited.
- There are internet facilities in all class rooms.



#### IV.4.1.3 Observation of Campus e-Governance Infrastructure and Networking System

For the purpose of observation, data collection team members visited NAEM campus and tried to explore present phenomenon of the area of MIS, e-Governance infrastructure, MIS personals and Network system. Our observations are started bellow.

**MIS:** NAEM has no separate server room. Only 1 server is there. At least 4 servers should be there to provide Database, Application software, Backup System and Shared Server. There is no 24 hours air conditions system and Fire distinguishes devices to protect the server.

**MIS Personals:** Now there are 3 personals working at MIS. There is no System Analyst which is executive post of MIS and responsible to make road map to achieve e-Governance goal at NAEM. There is 1 Programmer but there is no Assistant Programmer and Assistant Maintenance Engineer.

**Network:** NAEM took network support from BTCL as ISP. But there is no backup network line to ensure reliable network support. LAN is present at all class room. Wi-Fi support is available at Academic building, Administration Building, Lobby, Library, Cafeteria, Dormitory and Medical Centre. Wi-Fi speed is 30 MBPS. This 30 MBPS regulated by central router. Total 30 MBPS is open for all. So Wi-Fi bandwidth is not properly distributed among network segments. If one user used full bandwidth then rest all user will not get speed at all.

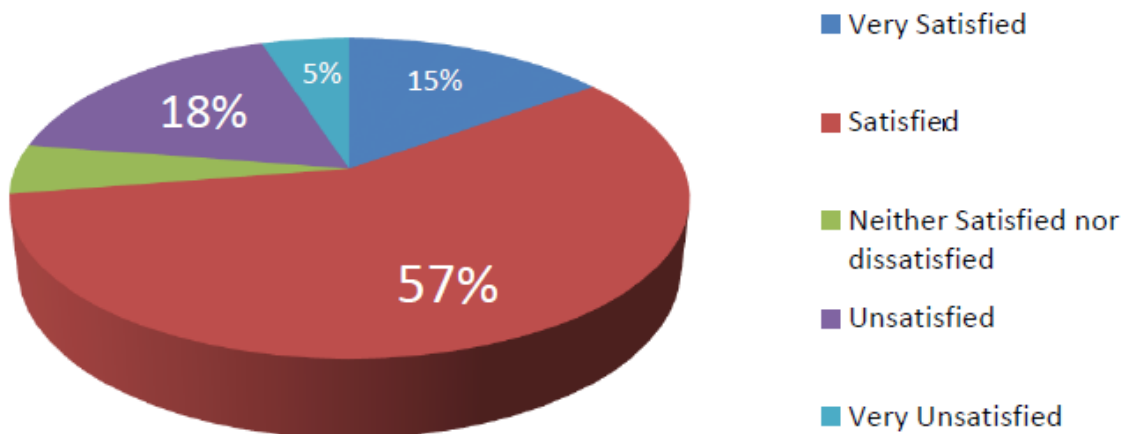
#### IV.4.1.4 Observation of Library

Research team members visited library and observed that there is a big library and holds about 50,000 Books, Journal and Research papers. Every activities of the library are manual system. There is no online Library Management Software by which cataloging, entry edit, searching, membership, book issue and return can be done. There is no online linking system by which other national and international library can be used by faculty and participants of NAEM.

#### IV.4.2 Survey Questioner

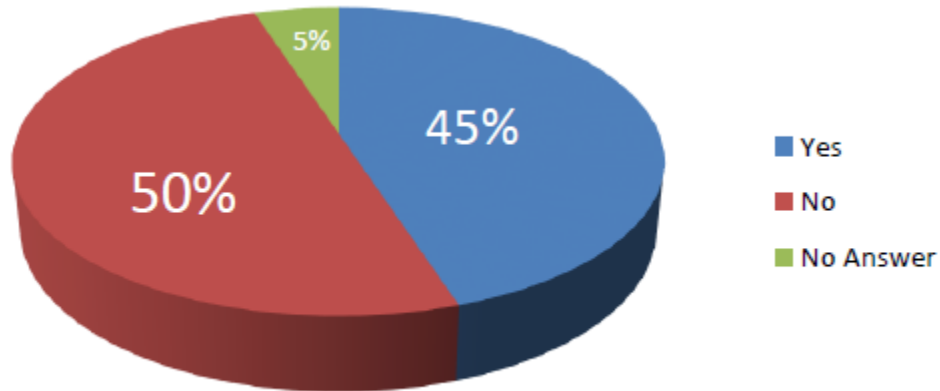
##### Survey Questioner to Participants

Q- Specify your position about ICT inclusion at non-ICT courses?



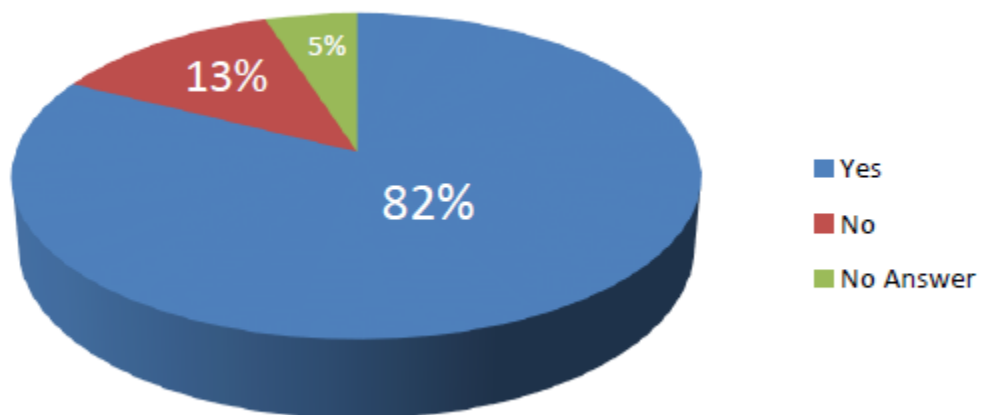
**Fig1:** ICT inclusion at non-ICT courses

Q- Are you getting 'One Man One Computer' at Computer Lab?



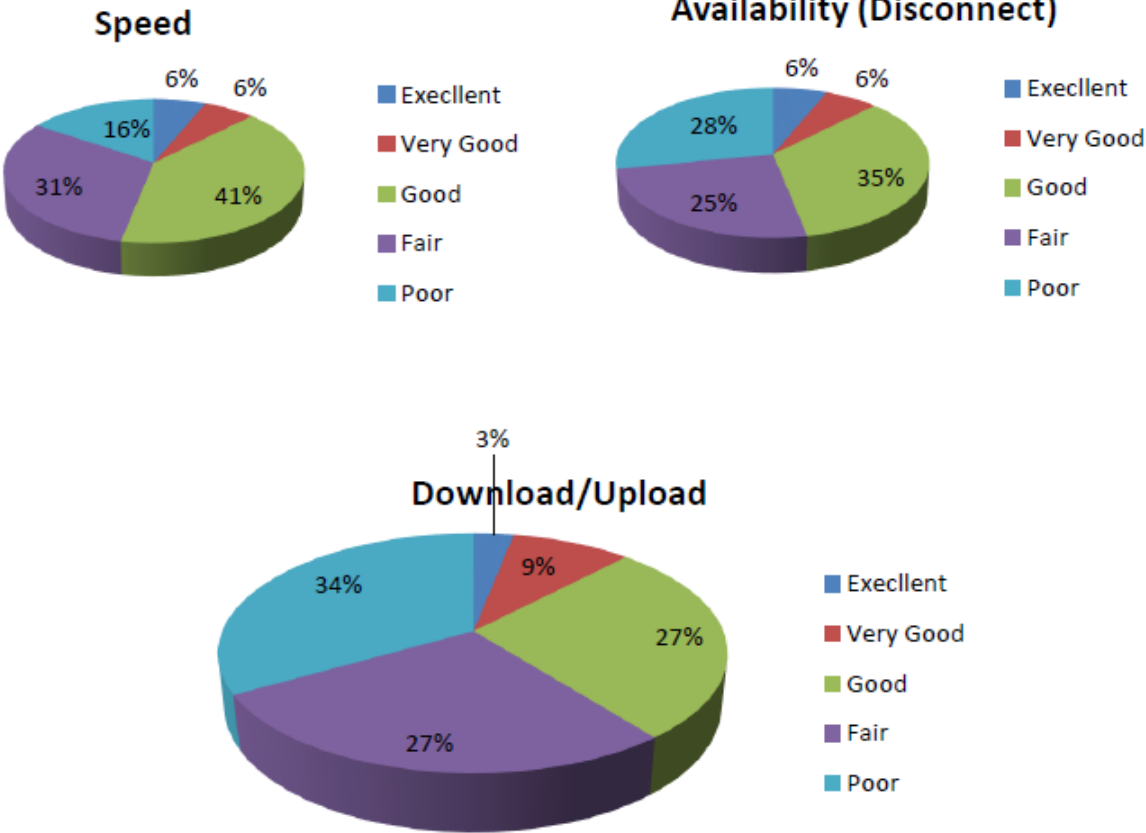
**Fig 2:** 'One Man One Computer' at computer lab

Q- Have you Internet Access at your Computer Lab?



**Fig 3:** Internet Access at your Computer Lab

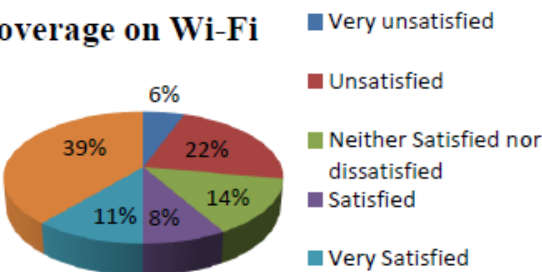
Q- If Yes: Internet supports on lab



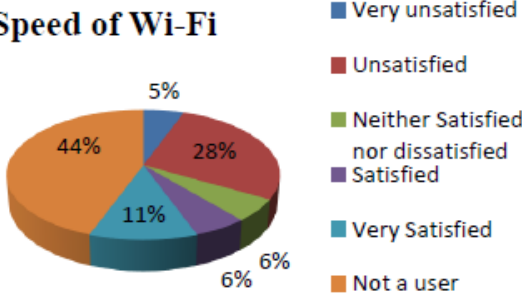
**Fig 4:** Internet supports at lab

Q. Rate the Following aspects of Wi-Fi network Support.

**Coverage on Wi-Fi**



**Speed of Wi-Fi**



**Availability of Wi-Fi**

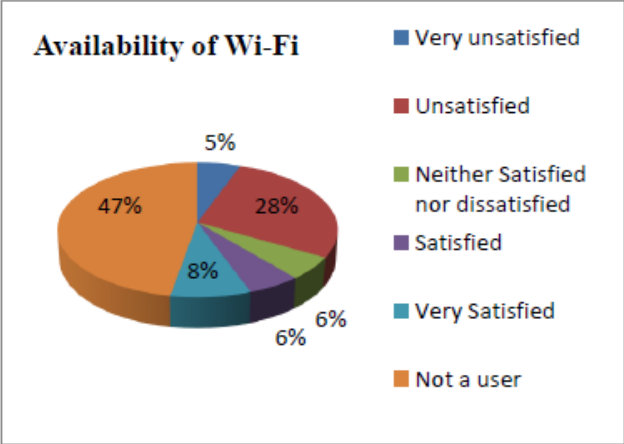


Fig 5: Aspects of Wi-Fi network Support

Q- Open ended

We asked participants regarding the barriers of availing e-Services at NAEM campus. Among 40 participants 10 participants comments about the barriers of availing e-Services. Following answers were got as barriers getting e-Services. Barriers are:

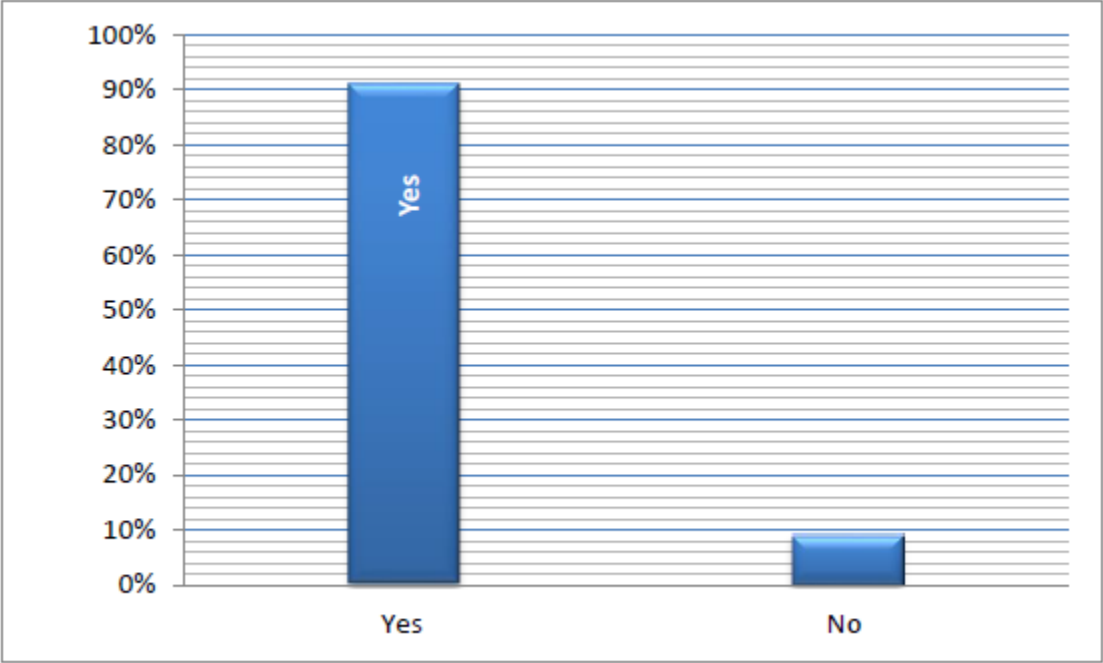
1. Wi-Fi connection is not reached.
2. ICT syllabus is too short
3. There are no Wi-Fi connection in hostels
4. Sometimes internet connection unavailable
5. Limited access
6. Wi-Fi Connection is not available everywhere in NAEM campus.
7. Wi-Fi speed is not satisfactory
8. Shortage of PC in lab
9. More PC should be increased.

Q- Open ended

There was last open ended question to participants to provide some suggestions to introduce new e-Service at NAEM campus for improving trainings. Out of 40 respondents, 35 respondents put suggestions to improve e-Services. Summary of suggestion (avoiding duplicate) are stated below:

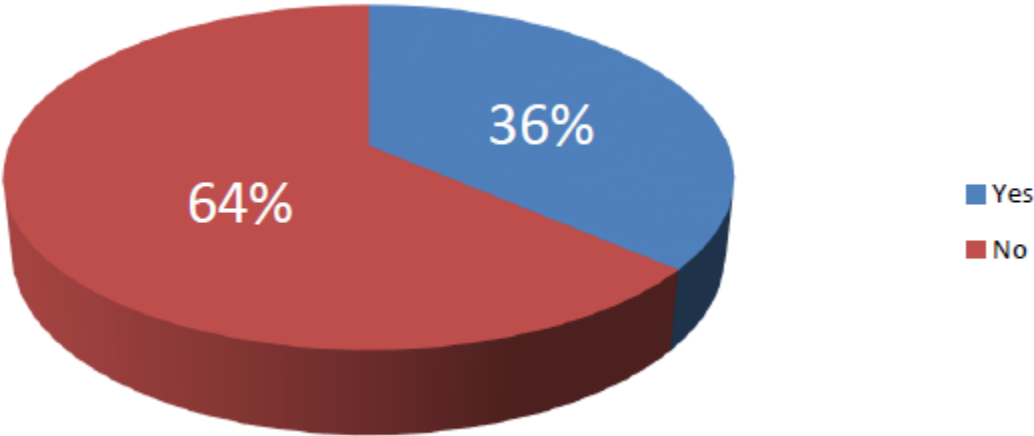
1. More Powerful accessible internet network Wi-Fi connection etc.
2. All the facilities should be advertized and be given digitally
3. I think NAEM campus should coverage by Wi-Fi connection
4. Buy more computer with high speed internet
5. Develop unlimited Wi-Fi network at NAEM
6. Need skilled operator
7. Everyday activities of class should be sent to the email address of all participants.
8. Provide reasonable tab facilities by NAEM for the training period.
9. It's a training program so there should be available all types e-Services at NAEM.
10. Lab class time should be increased.

Q- Do you have any personal computer or Laptop at your office provided by NAEM?



**Fig 6:** About personal computer/laptop

Q- Have you Internet Access at your computer/ Laptop/Smart Phone?

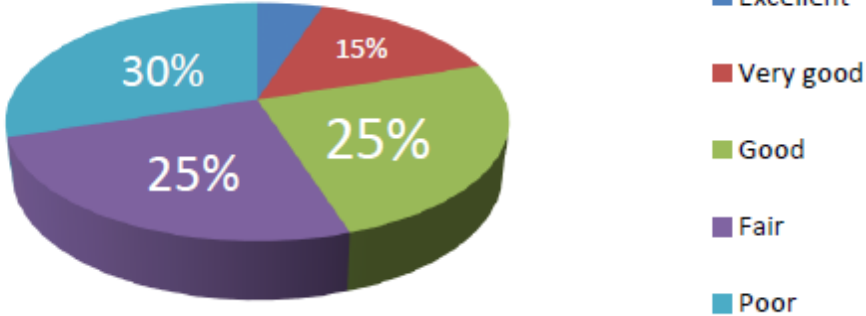


**Fig 7:** Internet access at your computer/laptop/smart phone

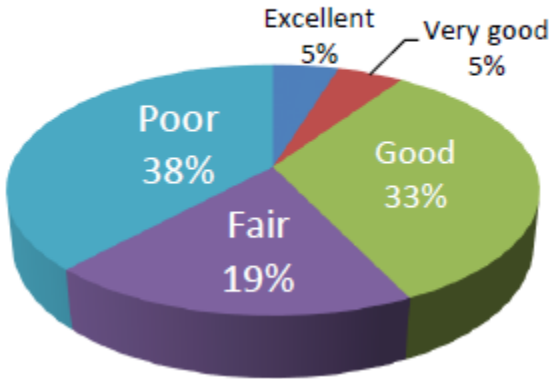


Q- If Yes, Rate the following aspects of your internet connection networks.

**Speed**

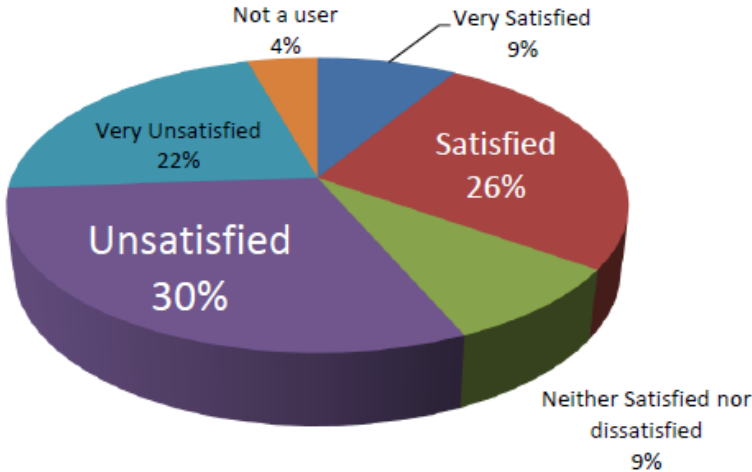


**Availability (Disconnect)**



**Fig 8:** Aspects of your internet connection speed and availability

Q- Specify your position regarding internet download and upload facility



**Fig 9:** Internet downloads and uploads facility

Q- Rate the following aspects of Wi-Fi network support.

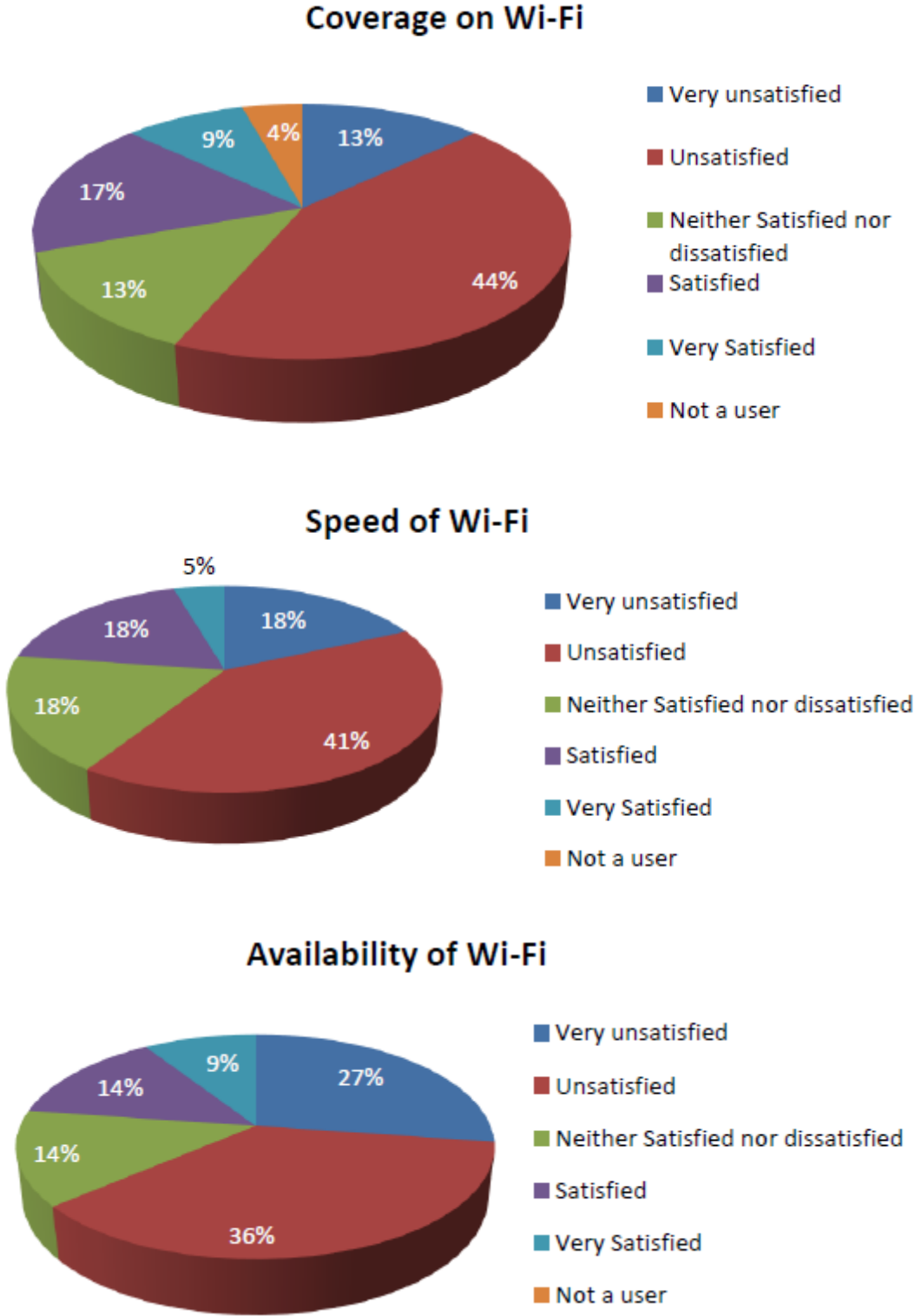
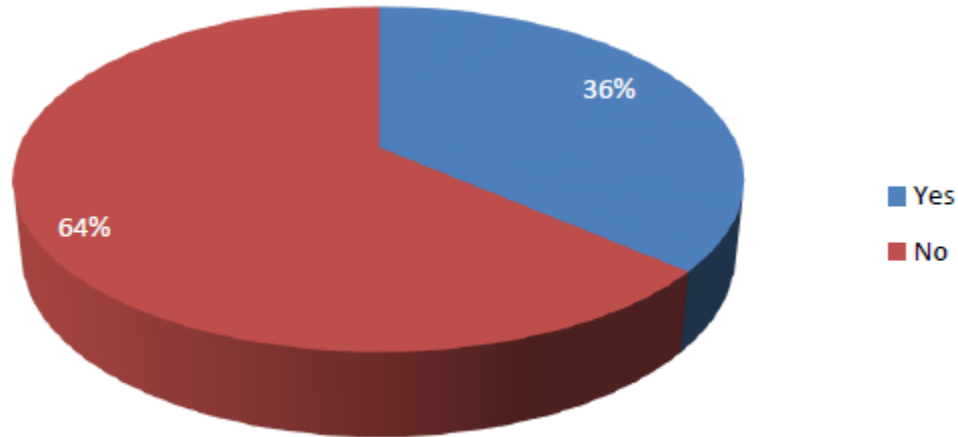


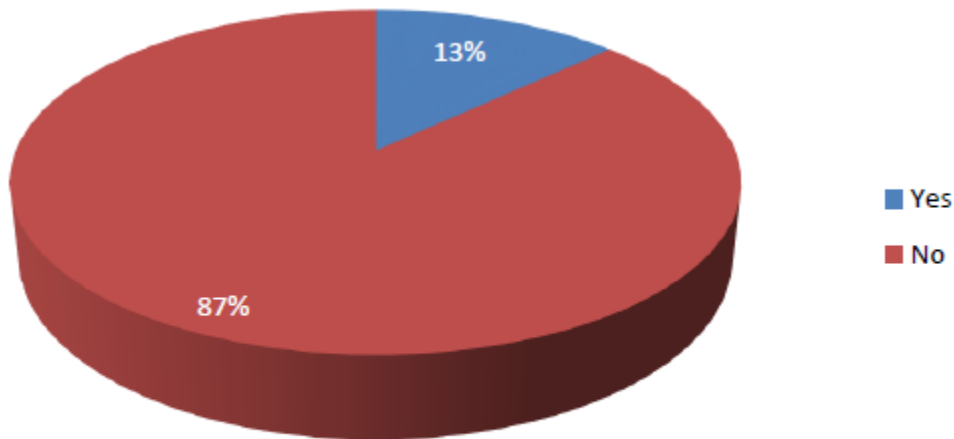
Fig 10: Aspects of Wi-Fi network support

Q- Have you got Internet Connection of all Class Rooms?



**Fig 11:** Internet Connection of all Class Rooms

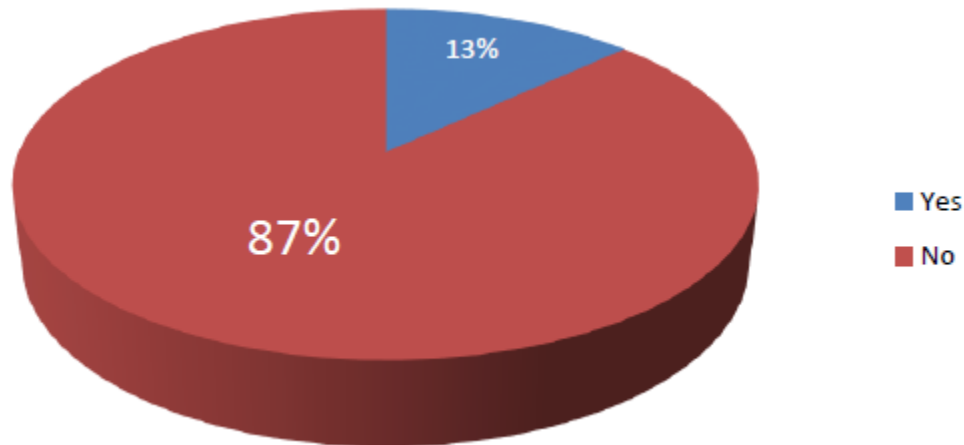
Q- Do you avail ICT related training every year?



**Fig 12:** Avail ICT related training every year

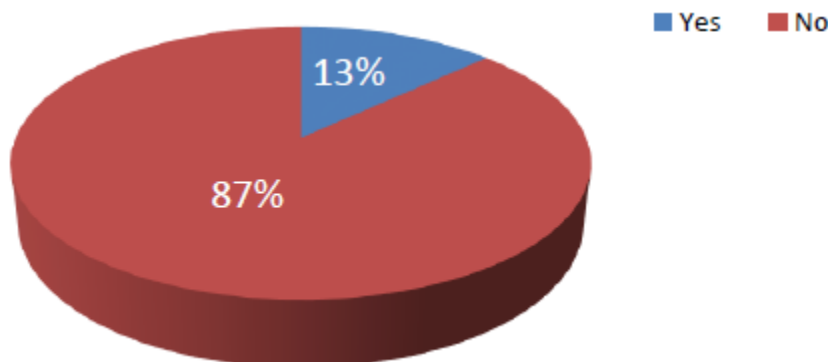
During the data collection period on February-2017, 13% faculty responded that they got ICT based training. These 13% faculty got training from outside of NAEM sources.

Q- Do you take Class Test/ MCQ/ Assignment using ICT tools?



**Fig 13:** Take Class Test/ MCQ/ Assignment using ICT tools

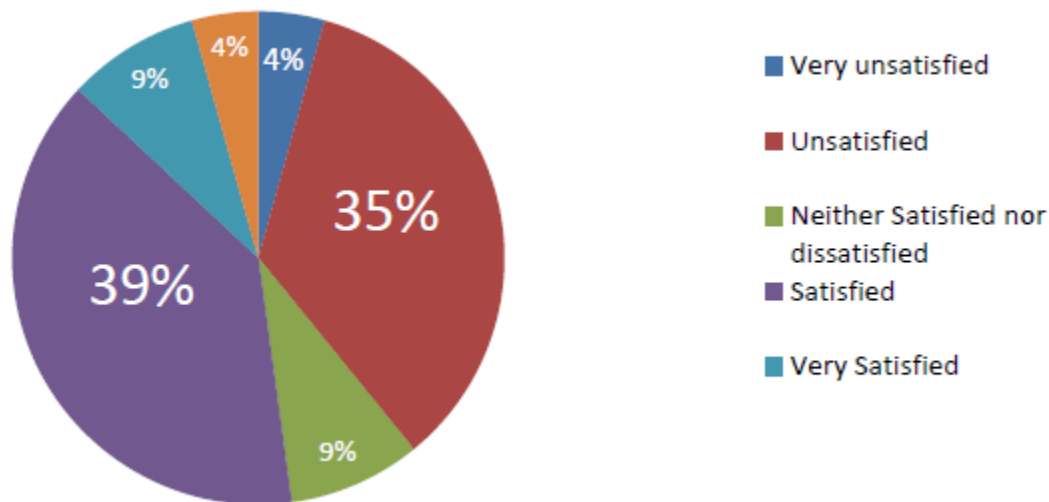
Q- Do you use Group Mail/Server Based Mobile SMS to provide instant messages during the training period?



**Fig 14:** use Group Mail/Server Based Mobile SMS to provide instant messages during the training period

Q- Do you have your own website to provide for support download your slide, publication to trainees?  
Ans: 100 % respondents answer were no i.e. faculties have no personal website to disseminate their activities in support with training, specially slide download.

Q- Specify your position regarding MIS supports services when you face any ICT related trouble?



**Fig 16:** MIS supports services when you face any ICT related trouble

## V. CONCLUSION AND RECOMMENDATIONS

### V.1 Conclusion

This study brings some findings after direct observation of NAEM campus as part of case study method. Research team members also surveyed NAEM participants and faculty members following the objectives of this study. This study found that there is no central server room and online web based training management software. There are no active apps also to manage training activities. There is no Campus Display System (CDS) to view everyday activities.

Observation of the class room found that, there were no modern external documents cameras and OMR in class room. By observing campus e-governance infrastructure and networking system, research team found that MIS personals were insufficient. Servers are inadequate. There is no backup line from ISP to NAEM. Wi-Fi bandwidth is not adequate and Wi-Fi bandwidth is not properly distributed by manageable router. After observing library we found that there is no online library management software.

By survey study found that 50% trainee are not getting computer at lab. In lab 47% trainee told that speed were fair and poor. 61% trainees were not happy with download speed in lab. In campus, 94%

trainee was not happy with Wi-Fi speed. Only 8% were happy in Wi-Fi coverage and only 6% were happy in availability of Wi-Fi.

64% NAEM faculties did not get PC/Laptop and also have not internet access. 55% faculties are not happy to internet speed. About 57% faculties are not happy to availability at their internet connection. 65% faculties are not satisfied their download and upload internet speed. 87% faculties expressed that they are not getting training on ICT every year. 52% faculties were unsatisfied to MIS support.

## **V.2 Recommendations**

1. A separate central server room should be accommodated to host all servers, network devices and power supply devices. It will be air-conditioned and will have fire distinguishes devices also.
2. NAEM will have at least 4 servers for the purpose of database, web based application software, backup and shared server.
3. System analyst, Assistant Programmer, Assistant Maintenance engineer, Computer Operator and Lab Attendant can be recruited for the MIS department.
4. NAEM should have central web based online application software by which training activities could be maintained.
5. Online library management software can be adopted.
6. There will be training management apps by which pre-registration of training and ongoing training activities can be reached to faculties and participants smartphone.
7. There will be NAEM Campus Display System (NCDS) to monitor Classroom, Auditorium, Administration and department wise major activities.
8. Modern external document camera will be attached with each PC/Laptop with in class room. This will be very helpful to show any book page, paper cutting and other topic related documents at projector screen during lecture.
9. At least 1 (One) modern Optical Mark Reader (OMR) will have. It is very much essential to take MCQ at running session and also instant evaluation purpose.
10. Backup internet line from ISP to NAEM should establish for the purpose of reliable internet services. 100MBPS Bandwidth can be adopted and can be distributed among the network segments by manageable router.
11. Wi-Fi Connection will be available at all hostels of NAEM. Special Wi-Fi bandwidth would be allocated for hostels.
12. Wi-Fi Connection will be available everywhere in NAEM campus.
13. MIS Personals will be trained specially on networking issues.
14. Everyday training related activities will be dissimilated throw center Server SMS, Group mail or Apps to participants and relevant faculties also.
15. Class lecture recording software can be used to record the lecture and delivered to the trainee.
16. Each faculty members will be ensured personal computer/laptop at office places.
17. Internet Access will be ensured at all faculty members' personal computer/ Laptop.
18. Internet Connection will be ensured at all class rooms.
19. Need assessment for faculty and staff will be done and necessary ICT related training will be arranged at least on time in a year.
20. Use of ICT tools will be used in taking class test/ MCQ/ Assignment. Online free tools can be used for this purpose. These tools can be Google Form, Moodle, and www.plickers.com.



21. Faculties can develop their own website to disseminate their activities and providing slide downloading facilities.
22. Printer and scanner will be available to faculty members.
23. Speedy administrative and financial support will be provided to the MIS department to ensure all sorts of reliable e-Governance support to improve the training.
24. ICT user championship award in training improvement using ICT tools and positive attitude in self-development of ICT uses can be started to motivate faculties.

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