

**Metric No. 7.2.1**

**BEST PRACTICES SUCCESSFULLY IMPLEMENTED BY  
THE INSTITUTION**

**Additional Information**





SOCIETY OF ST. FRANCIS XAVIER, PILAR'S  
**FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING**

*(Approved by AICTE & Affiliated to University of Mumbai)*

**Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.**

Phone : (022) 6711 4000, 6711 4101, 6711 4104

Website : [www.frcrce.ac.in](http://www.frcrce.ac.in) • Email : [crce@fragnel.edu.in](mailto:crce@fragnel.edu.in)

## **Best Practice 1**

### **1. Title of the Practice**

Open-source culture and In-house Software Development

### **2. Objectives of the Practice**

Proprietary commercial software is expensive, has licensing limitations, and annual fees. Commercial software's limited customization affects learning outcomes and administrative tasks. The college suggested developing an ecosystem to promote open-source technologies and in-house software development for academic and administrative purposes.

### **3. The Context**

Open source and in-house tool development allow for more transparent decision-making and stakeholder ownership. Software development and deployment require process clarity. Stakeholders must provide feedback frequently. Before employing open-source software in the lab, special training programmes must be organised. Open-source culture promotes diversity, transparency, and openness. Teamwork and collaboration are necessary for institute-level software development and use.

### **4. The Practice**

For lab work and projects, college recommends open-source software and tools. Students can use Libreoffice, OpenCV, PyTorch, OpenNN, TensorFlow, LaTeX, Octave, Scilab, GCC compiler, JDK, Eclipse, Umbrello, GNU plot, python compiler, packet tracer, NS2, Apache Hadoop ecosystem, and others to conduct lab experiments on desktop PCs. The college has a Linux cloud. Project groups are mentored to use open-source technologies for academic



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projects/contests.

Developers can freely change code in open-source technology without any restrictions. The software could be tailor-made as per the necessity of the institution or department. Open source has a great chance of success and can deliver great value. Open-source technologies are reliable and virus-free. Hence, there are many applications that the institution requires that are developed in-house using open-source tools. Following are the examples of applications developed:

- Application for
  1. Admission
  2. Biometric marking
  3. Leave Application
  4. Service Records
  5. Student Attendance marking
  6. Payment of Fees
  7. Examination e.g. Marksheet Printing
  8. Maintenance of stores
  9. Allotment of Invigilation Slots
  10. International Conference Review Process

Most of the commercial software available in the market for academic engagement and governance in higher education institutions is developed by multinational companies. This culture of open source will create confidence among students to develop in-house applications.

CRCE has signed a MoU with Linux Professional Institute (LPI) which is the global certification standard and career support organization for open-source professionals. Students and faculty are given courseware for self-learning and then they can get themselves certified as Linux Professionals.



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## 5. Evidence of Success

The Softwares developed are used in day-to-day college administration. Laboratory classes also employ open-source tools. This method has other benefits besides cost savings:

1. Code customization and innovation for institution needs.
2. It cultivates curiosity and ingenuity.
3. Promotes adding, replacing, or upgrading features.
4. Invites third-party developers/contributors to collaborate.
5. In-house apps are reliable, open, and trustworthy.
6. Open-source tools allow unrestricted learning.
7. Easy source code modification.
8. Create virus-free environment without antivirus software.
9. Faculty and students use all produced apps for academic, research, and administrative purposes.

## 6. Problems Encountered and Resources Required(150)

**Regular Maintenance:** Teams must manage, maintain, upgrade, and innovate code throughout. Need to streamline procedures so newcomers can learn the tool quickly.

**Governance:** Open-source software deployment and maintenance require careful planning.

**Absence of vendor support:** During lab sessions, you must address problems alone or with open-source communities.

**Interoperability of Tools Creating Silos:** Some open-source tools are so independent that they don't give uniformity or easily connect and integrate. Data from multiple departments or sources is challenging. Application integration is difficult.

**Deployment to a larger scale:** Software often works well in prototype projects but fails when deployed on a broader scale.



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## **Best Practice 2**

### **1. Title of the Practice**

Resource Sharing and Interlibrary Loan (ILL) Service.

### **2. Objectives of the Practice**

- To facilitate the students to avail the library facility of any of The Association of Catholic Christian Minority Institutions (ACCOMI) colleges by using their current college identity card.
- Students can visit the following college libraries for resource sharing /ILL.
  1. St. Francis Institute of Technology (Borivali).
  2. Xaviers Institute of Engineering (Mahim).
  3. Don Bosco Institute of Technology (Kurla)
  4. Fr. C. Rodrigues Institute of Technology (Vashi)
  5. St. John College of Engineering (Palghar)

### **3. The Context**

Students who stay far away from college may find it difficult to commute to college just to use the library resources during vacation or on holidays. The ACCMI which includes six colleges in the nearby vicinity of Mumbai, Palghar, and Navi Mumbai has facilitated the students to use any of these six libraries. In addition, students can use an interlibrary loan facility which enables students to access a vast range of resources beyond their institution's library collection. Interlibrary loan services facilitate access to resources from other libraries, ensuring students have access to the most comprehensive and up-to-date information available.

#### 4. The Practice

Any student may approach the library of other ACCMI institutes in their vicinity for his/her book requirements. For instance, a student of Xaviers Institute of Engineering (XIE) – Mahim residing in IC Colony – Borivali, would gain access to the library of SFIT and vice-versa or to the one of his/her choice. If the desired book is available, the lending library would allow the student to borrow it for reference only and make notes if required. The student, however, will not be permitted to carry the book outside the library. The Resource Sharing facility would definitely maximize the intended utilization of all the libraries. Also, every student will benefit by way of access to a variety of resources, and that too within his/her reach.

Rules to be followed:

1. Current College Identity Card of the student.
2. Photocopy at personal cost permissible (As per copyright norms)
3. One book for making notes is allowed inside the library
4. Any other specific rule as observed by the individual institute.

#### 5. Evidence of Success

This practice of resource sharing and interlibrary loan has been implemented since February 2014. Since then, many students have availed of this facility. A record of the same is available with the Fr. CRCE library. Some sample permission letters are shown below:

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ACCMI Library facility.

To

Date: 09.02.2023

The Librarian,  
St. Francis Institute of Technology  
Borivili

SUB: Permission for using Library Facility – ACCMI - Reg.

Dear Sir/Madam,

Our Student Ms. Larissa needs to refer Books from  
your Library. We request you to kindly grant them permission for the same.

Thanking You,

Yours Faithfully,

  
G. Jothilakshmi  
LIBRARIAN



(PRINCIPAL)

=====

To

Date: 15.11.2017

The Librarian,  
St. Francis Institute of Technology  
Botivali (W).

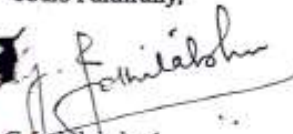
**SUB: Permission for using Library Facility – ACCMI - Reg.**

Dear Sir/Madam,

Our Student Jatin Dadiya Varant needs to refer Books from  
your Library. We request you to kindly grant them permission for the same.

Thanking You,

Yours Faithfully,

  
G. J. Jadhav  
LIBRARIAN



## 6. Problems Encountered and Resources Required

- Books are not allowed to be taken outside the library.
- Physically filling out the permission letter and getting it signed by the librarian.
- Additional resources may be required like “ACCMI Library Consortium” where E-resources, Software, and Teaching/Learning resources can be shared.