1. **Title of the Practice** This title should capture the keywords that describe the practice.

Integration of Information and Communication Technology in all aspects of functioning of HEI

2. **Objectives of the Practice** What are the objectives / intended outcomes of this "best practice" and what are the underlying principles or concepts of this practice (in about 100 words)?

NAAC manual for for Self Study report of Universities (p. 7) mentions the following "Technological advancement and innovations in educational transactions have to be undertaken by all HEIs, to make a visible impact on academic development as well as administration. [...] To keep pace with the developments in other spheres of human endeavor, HEIs have to enrich the learning experiences of their students by providing them with state-of-the-art educational technologies. The campus community must be adequately prepared to make use of Information and Communication Technology (ICT) optimally". Integration of ICT in the everyday functioning of TERI SAS has been geared to meet these objectives.

3. **The Context** What were the contextual features or challenging issues that needed to be addressed in designing and implementing this practice (in about 150 words)?

Sustainability being one of the core areas of importance and competence at TERI SAS, use of green practices came to it quite 'naturally'. E-office for internal communications (including approvals), 'portals' for students and faculty, financial software for meeting accounting requirements, MIS for managing academic matters were thought to be saving both time and resources including papers. It follows that from the very first day, all newly admitted students and staff members are exposed to an ICT enabled environment. This paid a lot of dividend during the pandemic in 2020. In a few days time the entire teaching and evaluation could be shifted to online mode.

4. **The Practice** Describe the practice and its uniqueness in the context of India higher education. What were the constraints / limitations, if any, faced (in about 400 words)?

Effective integration of ICT in every aspect of functioning has been implemented at TERI SAS since its inception. From submission of application form for admission to admission to choice of subjects to checking attendance records to accessing grades, every aspect of a student life-cycle has been operating within the digital platform. Similarly application for teaching positions to submission of appraisal to application for leave for faculty have been functioning in an ICT enabled environment. All the classrooms are equipped with latest ICT tools. Every aspect of finance is carried out through a digital environment.

Technical details of Management Information System (MIS) are given below.

S.No	Module	Description	Technology
1	Admissions	Admissions data is available in University management System(UMS).	Oracle 10g and Developer 2000(Forms and report 6i)
2	Academics	Entire academic module is available in UMS and respective part of the same in available in Student and Faculty Portal	For Faculty and Student portal, front developed in .Net and backend is Oracle
3	Examination	Role based access given to respective faculty member and can be processed through UMS.	Front developed in .Net and backend is Oracle
4	Placement	Can be access through .Net portal	Front developed in .Net and backend is Oracle
5	Feedback - Mid Term and Final	Can be access through .Net portal	Front developed in .Net and backend is Oracle
6	Minor - Major Project	Can be access through .Net portal	Front developed in .Net and backend is Oracle
7	ESS Portal	Can be access through .Net portal and managed through Navison Portal	Front developed in .Net and backend managed through Microsoft Navison
8	Purchase	Can be access through .Net portal and managed through Navison Portal	Front developed in .Net and backend managed through Microsoft Navison

A narrative follows:

a. Methods of IT integration in teaching and learning

- All teachers extensively use ICT enabled tools for interactive teaching to optimally employ student centric methods such as role-play, case-studies, presentations.
- Power-point presentations, conducting polls (kahoot.com), holding quizzes (Microsoft Forms), mind-maps are few methods adopted by teachers to blend IT-enabled methods in thetraditional classroom set-up.
- Guest-lectures, seminars/webinars, talks etc., workshops, trainings are organized through video-conferencing, skype etc.
- A repository of recorded video of seminars, guest-lectures and also lectures developed by faculty members have also been created for different courses; they are made available to students online for self-paced learning (https://www.youtube.com/user/teriuniversity/videos).
- Class attendance and progress of the students are posted on the postal by the faculty and available for access by the students.

b. IT enabled evaluation and assessment

- Format and weightage of assessments is integrated into the TERI SAS evaluation portal.
- Entire process of submission of grades by the faculty, moderation, submission of grades to the Controller of Examination and final display of results to be accessed by the students is carried out online via the UMS and portal systems.
- Plagiarism detection software available for detection of similarity in students' submissions for term-papers, project reports, thesis and dissertations.

c. IT integration in Admission and other administrative processes.

- Dedicated tab on the TERI SAS website for admission to all programs. Further time to time updates on the admission-status posted in 'announcements'. (https://www.terisas.ac.in/announcement.php)
- Up-to date and complete information on the admission dates https://www.terisas.ac.in/admissions-calendar.php), procedure to apply (https://www.terisas.ac.in/how-to-apply.php), no. of seats (https://www.terisas.ac.in/seats.php), fee payment (https://www.terisas.ac.in/payment-process.php), loan facility (https://www.terisas.ac.in/education-loan.php), refund policy (https://www.terisas.ac.in/refund-policy.php) along with a copy of brochure are posted on the institutions website.

d. Infrastructure supporting IT integration

- Dedicated IT staff for managing IT services and ICT assets at the university.
- Every classroom, seminar halls and conference rooms at TERI SAS is well-equipped with a computer system and projector.
- Wi-fi enabled campus.
- Two computer labs, one computer center and over 200 computer systems.
- Vast collection of e-books, e-journals and other e-resources along with remote-access to the library.
- A committee was set up in May 2020 'to recommend appropriate online unified communications platform for smooth conduct of academic activities' with the following terms of reference: (a) Review the appropriateness and effectiveness of the product/platform under existing licensing arrangement with M/s Microsoft Ltd. and other vendors for delivering online teaching-learning and examination processes; (b) Examine other popular platforms and recommend a suitable Product/ Platform for the University; (c) Examine other relevant IT related issues for long-term preparedness of the University for addressing challenges arising due to COVID-19 environment and offer suggestions if any. The Committee submitted its report in September 2020.

e. Pedagogic innovations in response to COVID 19 pandemic

- Advent of the pandemic and the subsequent lockdown, forced the physical premise of the university inaccessible, however, teaching-learning and evaluation continued with the same rigor.
- Students, faculty and staff given several training sessions for use of e-platform and resources.
- Remote access to the office – computer systems given to faculty and staff for better coordination. Students could access the computer in the laboratory to access and use the software in those systems.
- Microsoft Teams used as the platform for conducting classes, discussions, webinars etc.
- Accessibility of Online Resources at the Library from remote locations facilitating the students to access online aggregators subscribed by the library such as JSTOR, Science Direct, etc. (https://terivk.new.knimbus.com/)
- Take-home assignments, literature-review papers, term papers, presentations, short-term projects proposed for continuous assessments besides the online proctored time-bound exams.

5. **Evidence of Success** Provide evidence of success such as performance against targets and benchmarks, review/results. What do these results indicate? Describe in about 200 words.

Feedback from students taken to access their response on the online-teaching, attainment of learning outcome and methods of evaluation.
(https://terisas.ac.in/pdf/MediaRelease_firstRoundFeedback_classesOnOnlineplatform.pdf and https://terisas.ac.in/pdf/Secondsurveyamongstudentsononlineclasses_TERISAS.pdf) indicates reasonable satisfaction. Admittedly there were some issues, but most of them were beyond the scope of TERI SAS's intervention.

Feedback from faculty on conducting online classes and evaluation indicated a positive response (https://terisas.ac.in/pdf/FeedbackReportForIqacbyCOE.pdf).

6. **Problems Encountered and Resources Required** Please identify the problems encountered and resources required to implement the practice (in about 150 words).

It takes a little while for a newly admitted student or a newly appointed employee to get used to the ICT enabled environment, but with the cooperation extended by other students and employees and technical help from the IT team, soon they get used to it. At this moment, TERI SAS does not have a system to manage externally financed projects--it's aquisition and operationalisation will make the ICT enabled environment exhaustive.

7. **Notes (Optional)** Please add any other information that may be relevant for adopting/ implementing the Best Practice in other Institutions (in about150 words).