

2.3.2	Teachers use ICT- enabled tools including online resources for effective teaching and learning processes
QM	Write a description in maximum of 500 words
	File Description <ul style="list-style-type: none"> • Upload any additional information • Provide link for webpage describing the "LMS/ Academic Management System"

TEXT

1. 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 (using kahoot.com), holding quizzes (Microsoft Forms), mind-maps are few methods adopted by teachers to blend IT-enabled methods in the traditional classroom set-up.
- Guest-lectures, seminars/webinars, talks, workshops, trainings and other such are organized through MS Team. Since March 2020 every academic activity has been organised over this platform.
- Class attendance and progress of the students are posted on the portal by the faculty and can be accessed by the students. Through portal students submit feedback and faculty access the reports.

2. IT enabled evaluation and assessment

- Format and weightage of assessments is integrated into the TERI SAS evaluation portal. (See details in entry under metric 2.5.3)
- 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. (Flowchart is included in Annexure 1 in [Annexure 2.3.2.A](#))
- Plagiarism detection software available for detection of similarity in students' submissions for term-papers, project reports, thesis and dissertations. (see details in entry under 3.4.1)

3. Pedagogic innovations in response to COVID 19 pandemic

- Advent of the pandemic and the subsequent lockdown since March 2020, 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 were given to faculty and staff for better coordination. Using VPN, students could access computer in some of the labs.
- 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. ([Link](#) to Remote Access; more details are [here](#))
- Feedback from students taken at regular intervals to access their response on the online-teaching, attainment of learning outcome and methods of evaluation. Reports on the feedback from students taken to access their response on the online-teaching, attainment of learning outcome and methods of evaluation is available here ([Link1](#) and [Link2](#)) indicate 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 as well ([Link](#)).

4. 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](#)'. Up-to date and complete [information](#) on the admission dates, [procedure to apply](#), [no. of seats](#), [fee payment](#), [loan facility](#), [refund policy](#) and [admission brochures](#) are posted on the institutions website.

5. Infrastructure supporting IT integration

- Dedicated IT staff for managing IT services and ICT assets at the university. Entry under 4.3.1 and 4.3.2 provide details on IT infrastructure
- For online and distance mode students, LMS/ Academic Management System is available at <http://odl.teriuniversity.ac.in/>. It was used exclusively for Distance Learning Programmes like [PG Diploma \(Renewable Energy\)](#) and [Advanced PG Diploma \(Renewable Energy\)](#) offered by [Centre for Distance Education](#) till AY 2018-19. Some screenshots are enclosed as [Annexure 2.3.2.B](#).
- For Offline Students, portal is available at <https://portal.terisas.ac.in/>. Details about the facilities are included in the metric number 6.2.3.
- Some screengrabs of MS Team interface are included in [Annexure 2.3.2.C](#).

Evaluation and Examination Policy**1. Evaluation policy of TERI School of Advanced Studies**

Against the backdrop of a choice-based credit system, the evaluation process in each semester at TERI School of Advanced Studies (TERI SAS) is based on the following principles:

- Decentralized evaluation system
- Continuous evaluation system
- Intensive review of evaluation plans
- Performance in evaluation process is indicated by Cumulative Grade Point Average (CGPA)
- Relative grading system for courses
- Absolute grading system for projects/dissertations
- Five stage moderation and review of the grades

A flow chart of the evaluation process is presented in Annexure 1.

2. Decentralized evaluation system

In general, TERI SAS follows a system of internal examination process following the principle of "those who teach, evaluate" for all the courses at the Masters' and Ph.D. programmes. External examiners may be invited at the discretion of the course instructor.

3. Continuous evaluation system

TERI SAS follows a continuous evaluation consisting of various types of assessments that include, but are not limited to:

- Closed book written examinations
- Open book examinations
- Assignments
- Quizzes
- Presentations
- Field work based assessments
- Lab based assessments
- Viva/Oral examinations
- Group based activities
- Research based term papers
- Reviews of literature

- Projects
- Dissertation

Many of the assessments in each programme, including the projects and dissertations, focus on developing the higher stages of Blooms' Taxonomy of Educational Objectives such as applying, analyzing and generating creative ideas or perspectives.¹

4. Intensive review of the evaluation plan.

The evaluation plan is a part of the syllabi of each course. It includes the components of assessments and their weightages. These are reviewed in at least four stages: the Masters' Programme Executive Committee (MPEC), external experts, Board of Studies and the Academic Council. Once finalised, these are incorporated into the University Management System (UMS). Instructors cannot change this evaluation plan.

5. Grading system

- The evaluation of courses generally follows relative grading system. In this system, the performance of a student is based on the rank in the class.
- The evaluation of projects and dissertation generally follows an absolute grading system. Grades may be awarded on the discretion of the project/dissertation advisor(s) based on continuous evaluation during the semester, a final report/dissertation/thesis, and a final presentation to experts, including, wherever possible, an outside expert. The weightage given to performance and regularity in meetings and mid-term evaluation/presentation will be restricted to 40%. The grades may be based on the rubric provided in Annexure 2.
- The grades that can be awarded along with their equivalent numerical points are given below.

Letter grade	Grade point	Performance
A+	10	Outstanding
A	9	Excellent
B+	8	Very Good
B	7	Good
C+	6	Average
C	5	Below average
D	4	Marginal
F	0	Very poor
I	-	Incomplete
W	-	Withdrawn

¹ Bloom, B. S., Englehart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *The Taxonomy of educational objectives, handbook I: The Cognitive domain*. New York: David McKay Co., Inc.

Ab.	-	Absent
NC (Pass)	0	Audit course pass
NC (Fail)	0	Audit course fail

- d. The minimum passing grade is D. A student does not earn any credits in courses where s/he gets F grade. S/he has to repeat all such courses until a passing grade is obtained. Thus, F grade may result in an increased period of stay in order to complete the requirements for the degree. All other letter grades represent earned credits. The credits for the courses in which a student has obtained a D or higher grade will be considered as credits earned by the student.
- e. A student is required to meet the minimum attendance requirement of 75% in all courses registered. In case he/she does not, he/she will not be permitted to sit for the final examination and will be awarded an Ab. Grade.
- f. An I grade will be awarded to a student if s/he has not fulfilled all the requirements for the course on account of extraordinary circumstances, subject to having 75% attendance in lectures, tutorials and/or laboratory classes.
- g. The concerned course coordinator should be convinced about the extraordinary circumstances and should verify the attendance from the record before recommending this rarely used option to award an I grade. The I grade awarded will be notified by the Department to which the student belongs, and copies of the notification will be sent to the Academic Section and to the course coordinator concerned.
- h. The I grade will be converted into a proper grade and sent to the Academic Section within 10 days from the date on which all the assessments/evaluation processes are completed.
- i. In special situations arising due to extraordinary circumstances, the period of conversion of I grade may be extended to the first week of the next semester, with the approval of Dean on the recommendation of the Course Coordinator and the Head of the Department to which the student belongs. The request has to be made sufficiently in advance.
- j. 'NC (Pass)'/ 'NC (Fail)' grades are awarded in an audit course. Students do not earn credits in audit courses; they are only awarded a "pass" or "fail" grade, which a student may register for on a pass/fail basis. These grades are not considered in the calculation of SGPA (Semester Grade Point Average) or CGPA (Cumulative Grade Point Average).

6. Calculation of SGPA and CGPA

The performance of a student will be represented by two indices: SGPA and CGPA.

CGPA is the grade point average for all the completed semesters.

$SGPA = \text{Total of (course credits} \times \text{grade points) / Total of (course credits)}$

$CGPA = \text{Total of (course credits in passed courses} \times \text{grade point) / Total of (course credits in passed courses)}$

While computing SGPA, all the registered credits are taken into account, whereas for computing CGPA, only the earned credits are considered. The following example illustrates how this is done.

First semester

Course No.	Course credits	Grade awarded	Earned credits	Points secured
1	5	C+	5	30
2	4	C	4	20
3	4	A+	4	40
4	1.5	B+	1.5	12
5	4	B	4	28

Credits registered = 18.5

Earned credits = 18.5

$SGPA = (\text{Points secured in the semester}) / (\text{Credits registered}) = 138 / 22.5 = 6.13$

CGPA: Not applicable

Second semester

Course No.	Course credits	Grade awarded	Earned credits	Points secured
1	5	D	5	20
2	5	F	0	00
3	4	B	4	28
4	1.5	C+	1.5	09
5	4	A	4	36

Credits registered in this semester = 19.5

Earned credits in this semester = 14.5

Cumulative earned credits = 33.0 (first + second semester)

$SGPA = (\text{Points secured in the semester}) / (\text{Credits registered}) = 93 / 19.5 = 4.75$

$CGPA = (\text{Points secured in passed courses}) / (\text{Cumulative earned credits}) = (130 + 93) / (18.5 + 14.5) = 223 / 33 = 6.75$

7. Terminal Assessment

Every Head of Department/Programme Coordinator is required to give the date sheet of terminal assessments of all courses in their department/programme to the exam section at least ten days before the start of examinations as per the academic schedule of TERI SAS. The terminal assessment may include written examinations or any other form of assessment.

8. Guidelines for Conduct of Terminal Written Examinations

- a. In case of written examinations, every Head of Department/Programme Coordinator is required to give the list of invigilators and backup invigilator for any emergency for all the examinations of their programme to the examination branch. This is to be submitted along with the examination date sheet. They also have to provide information about any extra logistical help they may require, (for example lab or power cords, etc). This is to be submitted along with the examination date sheet at least ten days before the start of the examinations.
- b. Any change in the name of invigilator(s) is to be brought to the notice of examination branch at least two days before the examination date of that course.
- c. The Head of Department/Programme Coordinator/faculty are required to send their question paper to the examination branch at least 5 days before their scheduled exam so that these may be checked for errors by the examination cell, photocopied and kept in sealed envelopes which would be handed over to the concerned faculty member 15 minutes before the commencement of their respective exam. The course coordinator is requested to mention clearly
 - i. Whether it is an open-book or closed book exam;
 - ii. Which teaching notes and materials a candidate can carry;
 - iii. Any other relevant instruction she/he intends to share.
- d. The invigilator of the examination would collect all the answer sheets and attendance sheet after the completion of the exam. The faculty is required to evaluate the answer sheets and submit grades to the MPEC within the timeframe specified in the academic calendar. The faculty/course coordinator will then submit the answer sheets to the examination branch, after showing them to the concerned students, for records. In case the answer sheets are to be examined by external faculty, the course coordinator is responsible for making necessary arrangements to get these evaluated by the external faculty members and show these answer sheets to students. After the specified date, these answer sheets are to be submitted back to examination branch.
- e. Answer sheets are stored for a period of 5 years as per UGC regulations.

9. Eligibility & Responsibility of Invigilator for Examination

- a. Under normal circumstances course faculty/course coordinator is expected to act as the invigilator for her/his examination. In specific cases where the course faculty/course coordinator is not available, the Head of Department/Programme Coordinator is required to depute another faculty/research scholar from her/his department to perform the duty of invigilation.

- b. The course coordinator may be assisted by other faculty members or research scholars or teaching assistants but the responsibility of smooth conduct of the examination would remain with the course coordinator.
- c. Invigilators should adhere to the starting time of the exam. In case the duration of an exam is less than 3 hours duration, then be completed earlier than the designated end time, but the exams have to begin on time.
- d. The invigilator is responsible for the conduct of the examination. If s/he notices any occurrence of use of any unfair means, s/he is authorized to take strict action against the students. In case of serious breach of the code of conduct, the invigilator may report the event to Controller of Examination/Deputy Controller of Examination immediately.

10. General instructions for the students regarding written examinations²

- (a) The students shall occupy the seats allotted to them by the concerned Invigilator. If no such allotment is made, there shall not be in any circumstances more than two on a desk.
- (b) Any student arriving more than 30 minutes late shall not be generally allowed to sit for the examination. However, the concerned invigilator(s) shall decide on the merit of a particular case.
- (c) Students are not permitted to leave the examination hall during the examination period. However, in a very exceptional case, if the faculty invigilator allows such leave; a candidate not returning within 3 minutes shall be liable to cancellation of her/his paper.
- (d) In case of a closed-book exam, there shall not be anything other than pens, pencils, eraser, and a scientific or normal calculator, ruler in an examinee's possession. It is to be noted that all books and notes and electronic gadgets including cell-phones, i-pads, i-pods, tablets, laptop and the like are to be deposited in an earmarked space.
- (e) If calculators are permitted, only one calculating device that is not a part of any other gadget shall be allowed.
- (f) If calculators are permitted, students shall use only her/his own device. No sharing shall be allowed.
- (g) In case of an open-book test, in addition, a candidate shall be allowed only the books and notes the faculty would have specified for the purpose.
- (h) Every candidate shall observe silence, decorum and abide by the instructions given by the faculty on invigilation during the examination.
- (i) Talking or discussing among themselves or sharing answers/hints in any form shall be punishable and will lead to disciplinary action.
- (j) Mobile phones are not allowed in the examination hall. Students have to switch off the mobile and submit it to the invigilator or put in the bags. Mobile phones should not be available with students or on their respective desk.
- (k) Internet access is not allowed during examination time.

² These instructions are subject to change at the discretion of the course coordinator or Controller of Examinations.

- (l) Anything in the candidate's possession other than that allowed, or violation of any of these instructions, might lead to cancellation of the paper. In such cases, the invigilators' report shall constitute the exclusive evidence for judgment.

11. Moderation of grades and declaration of results

- a. The results of the students go through five stages of scrutiny before they are published – MPEC, the Dean (Academic), the Examination Cell, the Controller of Examination and the Registrar.
- b. After the assessment outcomes and feedback is shared with the students, the marks are uploaded by instructors to the TERI SAS portal for grade moderation and review process.
- c. Moderation of grades takes place at two levels – the MPEC (programme level) and the Dean (Academic) (TERI SAS level).
- d. The entire process of submission of grades by the faculty and moderation takes place online via the UMS and portal systems and then the grades are submitted to the examination cell.
- e. The examination cell checks for any inconsistencies/errors forwards the grades for review and approval by the Controller of Examination and Registrar.
- f. The results are then released to the students via the portal.

12. Policy and Procedure for Student Appeal of the Final Course and Project Grade

a. Purpose and scope of the final grade appeal policy

The purpose of the final grade appeal policy is to establish a fair procedure for settling cases involving contested final grades assigned in the courses or projects. However, this applies only to the final grade of a course or project, and does NOT apply to the marks/grades assigned for specific components of the courses or projects (i.e. assignments, presentations, tests etc). This also does NOT apply to any grade changes done as a result of disciplinary action against the student.

Appeals for review of more than one grade must be applied for on separate applications. Each application would need to be accompanied by the requisite fee.

b. Time-frame for grade appeal

All final grade appeals must be initiated by the student within 3 working days of the grade display.

c. Procedure for grade appeal for a course

The award of a grade for the performance of a student in a course is the prerogative of the course faculty-in-charge. A grade given by the faculty member may be changed only by that faculty member. In exceptional cases, it may be changed by the Dean (Academic), on the recommendation of the MPEC.

The student should contact the Registrar office to ensure that there is no input error. In case no input error is found, the student may meet the concerned faculty-in-charge to initiate the informal procedure.

Informal process:

The student who believes that s/he was given an improper grade, must meet the concerned faculty member, within 3 working days of the grade display, to review her/his grade if s/he believes that there was an error while totalling marks of various components (e.g. tests, assignment, field reports etc.) of the course.

The informal process must be carried out face-to-face. However, if the faculty member is not available in the office, the discussion between the student and faculty may take place through email or phone, if suggested by the faculty member.

Formal process***Application to Dean (Academic)***

If the student is still dissatisfied over her/his final grade, s/he may apply for a formal procedure of grade review to the Dean (Academic). This must be done within 5 working days of the grade display.

The formal application for final grade review must be done as a signed written request and must include a statement from the student providing evidence that supports the argument that a fair evaluation method has not been used while assigning the final grade to her/him.

The Dean (Academic) will review the matter by holding meetings with the student and concerned faculty member individually, and will:

Communicate the decision to the student within 7 working days, OR

Refer the matter to the MPEC for a review, and thereafter take a decision based on the recommendation, within 7 working days.

Review by the MPEC

When the Dean (Academic) refers the matter to the MPEC for a review, s/he would pass-on on the points relevant to the case, to the chairperson of the MPEC, who in turn, after the meeting, would communicate the recommendation of the MPEC, in writing, to the Dean(Academic).

In normal circumstances, the faculty-in-charge of the course must attend the MPEC meeting.

Decision of the Dean (Academic)

The final decision of the Dean (Academic) will be communicated to the faculty-in-charge for retention/change of grade. This will then be communicated to the Registrar's office.

d. Procedure for grade appeal for a project/thesis/dissertation

The awarding of grade for the performance of a student in a project/**thesis/dissertation** is the prerogative of the Master's Programme Executive Committee (MPEC). A grade given by the MPEC may be changed only by the committee.

If the student is dissatisfied over her/his final grade in a project (Minor or Major) or thesis or dissertation, the student should contact the Registrar office to ensure that there is no input error.

In case no input error is found, the student may meet the Project Coordinator /HoD to initiate the informal procedure.

Informal process

The student who believes that s/he was given an improper grade, must meet the concerned faculty in-charge, that is, the project coordinator or thesis coordinator or programme coordinator or Head of the Department, within 3 working days of the grade display, to review her/his grade and to find out if there was any error while calculating marks of various components (e.g. presentation, written report etc.) of the project.

The informal process must be carried out face-to-face. However, if the concerned faculty in-charge is not available in the office, the discussion between the student and faculty in-charge may take place through email or phone.

After hearing the case of the student, the faculty in-charge will discuss the issue with the concerned evaluation committee and the supervisor. The faculty in-charge will communicate the decision to the student within 3 working days.

Formal process

Application to Dean (Academic)

If the student is not satisfied with the outcome of the informal procedure, s/he may appeal for a formal review of the final grade to the Dean (Academic).

The formal application for final project/thesis/dissertation grade review must be done as a signed written request and must include a written statement from the student providing evidence that supports the argument that a fair evaluation method has not been used while assigning the final grade to her/him. This must be done within 5 working days of the grade display.

The Dean (Academic) will review the matter by holding meetings with the student and faculty in-charge/Programme Coordinator/HoD, and will: -

Communicate the decision to the student within 7 working days, OR

Set up an *ad-hoc* grade review committee, to review the grade.

e. Ad hoc Final (project) grade review committee

The review committee will consist of:

- (i) Dean (Academic) - Chair
- (ii) Two faculty members from the same discipline*
- (iii) One faculty member from another discipline*

(*These faculty members will be other than those who evaluated the project or were associated with the project in any way)

The committee will review the documents and evidence provided by the student and the faculty in-charge. The committee may request the student, supervisor or any of the evaluation committee members to present their case in front of the committee, if required. The committee will give its decision within 7 working days of the appeal.

f. Decision of the review committee

The decision of the Review Committee will be communicated by the Dean (Academic), to the Chairperson of the MPEC, who may, if required, call a meeting of the MPEC and retain/change the grade. This will then be communicated to the Registrar's office.

g. Final grade after review

The grade awarded after the review process will be taken as final, and cannot be appealed against. This would include situations where grades may be lowered as a result of the review.

h. Fee for review

Students applying for the formal procedure for review of a grade awarded must submit a fee of Rs 1000/- along with the application. For appeals against more than one grade, each appeal is to be applied for separately, each accompanied by a fee of Rs 1000/-.

13. Malpractices during examinations and assessments

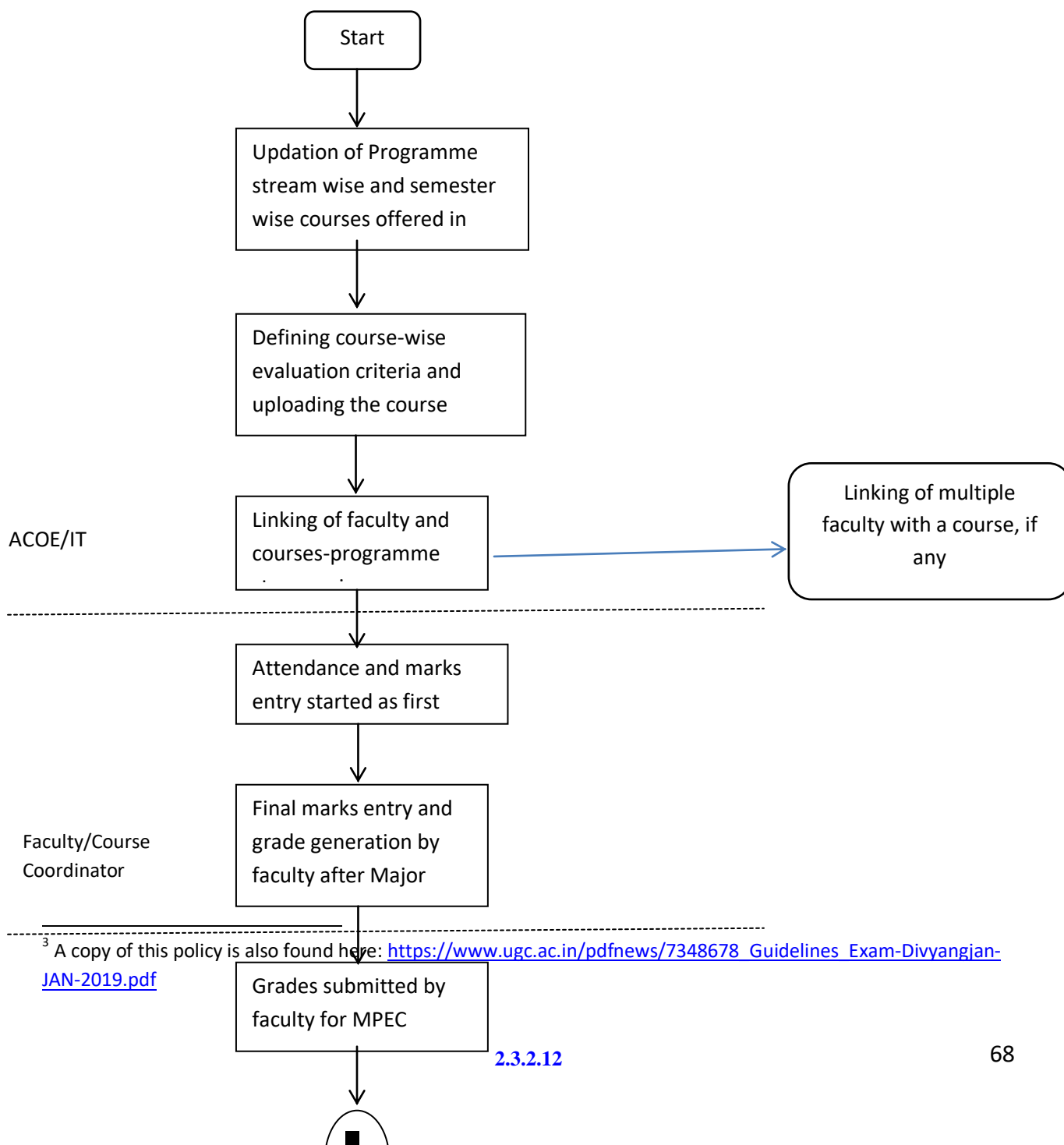
- a. Several measures are undertaken to prevent malpractices during examinations and assessments, including but not limited to, stringent rules and regulations during conduct of examinations, CCTV monitoring, surprise inspections and plagiarism checking, as applicable.
- b. The invigilator is responsible for the conduct of the examination. In case of any proven academic or behavioural misconduct during the examination, s/he is authorized to take strict action against the students. All such actions may be noted in the MPEC meeting and a copy shared with the Controller of Examinations, Deputy Controller of Examination and Dean (Academic) for records.
- c. In case of serious breach of the code of conduct, the invigilator or any faculty member (including guest faculties) may formally report the event to Dean (Academic) with a copy to Controller of Examination/Deputy Controller of Examination immediately.
- d. The complaint will be heard and adjudicated on the basis of the rules and regulations of the TERI SAS Student Disciplinary Committee except for cases of suspected plagiarism, which will be adjudicated on the basis of UGC notification No. F. 1-18/2010(CPP-II) dated July 23, 2018 by the appropriate Institutional Academic Integrity panel in accordance with the guiding principles of the TERI SAS Institutional Academic Integrity Panel(IAIP).

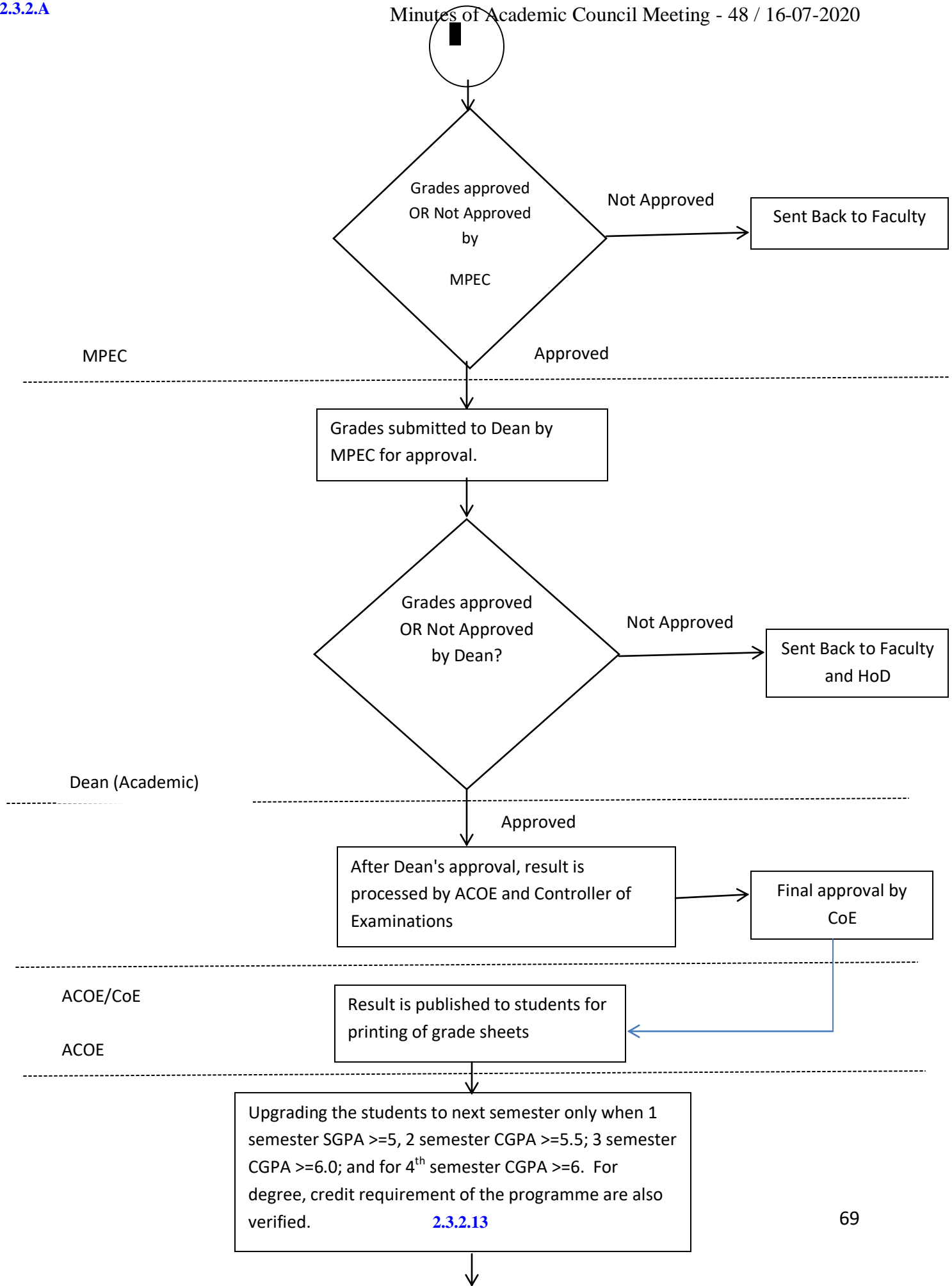
14. Examinations for persons with benchmark difficulties

Any such examinations will be conducted in compliance with the "Guidelines for Conducting Written Examinations for Persons with Benchmark Difficulties" as outlined in O.M.No.34021201s-DD-III dated 29.8.2018 of Ministry of Social Justice & Empowerment, Department of Empowerment of Persons with Disabilities. The details are in Annexure 3.³

Annexure 1

Flow Chart of Evaluation Process





Annexure 2**Grading Rubric for Projects and Dissertations.**

The following grading rubric is to be used for evaluation of Minor/Major Projects and Dissertations. This rubric may also be adapted for any other assessments if applicable.

A+/A

- The project shows creativity and substantial effort. Either good results have been achieved or there is an explanation and analysis of what went wrong and suggestions for improvements.
- The project report is well written and easy to understand. The technical descriptions are accurate and complete. (Definitions may be given to clarify ambiguities.) Data is presented in an easy-to-understand format (tables and/or graphs). Diagrams are labelled and clear. Grammar, typing, and spelling errors have been corrected.
- The oral presentation is done in a professional and organized manner, describing the main highlights and contributions of the project.

B+/B

- The project shows good effort. Acceptable results have been achieved or there is an explanation of what went wrong.
- The project report is reasonably well written. The technical descriptions are accurate and complete, although there may be some ambiguities. Data is presented in an easy-to-understand format (tables and/or graphs). Diagrams are included. Most of the grammar, typing, and spelling errors have been corrected.
- The oral presentation is done in a professional manner, describing the main highlights of the project.

C+/C

- The project shows reasonable effort but produces limited results.
- The project report is submitted but parts of it are not easy to understand. The technical descriptions may be inaccurate or incomplete. Some data or diagrams may be missing. The report includes grammar, typing, or spelling errors.
- The oral presentation is done in a professional manner, but is difficult to follow or does not include significant details.

D

- The project shows a lack of effort and produces poor results.
- The project report is submitted but is difficult to understand. The technical descriptions may be inaccurate or incomplete. Data or diagrams may be missing. The report includes numerous grammar, typing, or spelling errors.
- The oral presentation is done in an unprofessional manner.

F

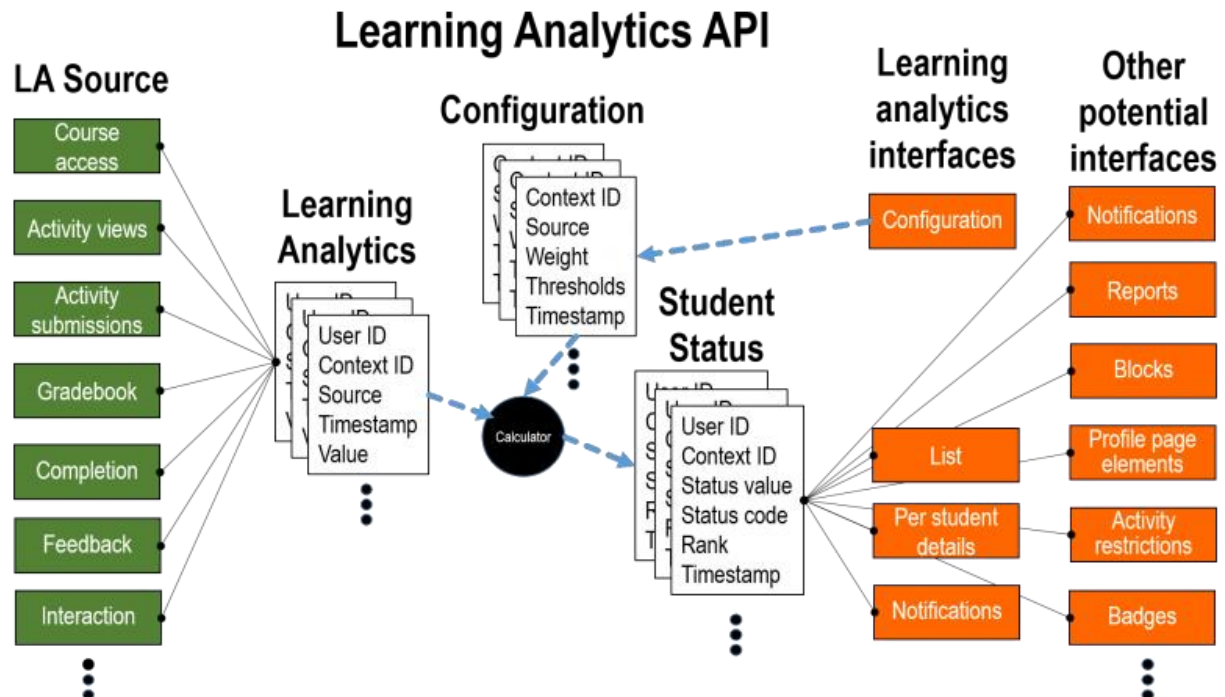
- The project shows a lack of effort and produces poor results.
- The project report is not submitted.
- The oral presentation is done in an unprofessional manner.

Annexure 3

Refer to University Grants Commission letter No. F.No.6-2/2013tSCT) dated January 2019 on the subject Guidelines for conducting written examination for Persons with Benchmark Disabilities.

2.3.2.B

TERI SAS | Moodle



e-Learning @ TERI School of Advanced Studies



The screenshot displays the Moodle interface for the e-Learning @ TERI School of Advanced Studies. The top navigation bar includes the TERI University logo, the 'e-Learn' branding, and a login status indicator ('You are not logged in. (Login)'). The main content area features a welcome message and a description of the e-Learning initiative, which aims to provide advanced learning opportunities in energy, environment, and sustainable development. A sidebar on the left provides navigation options for activities, forums, quizzes, resources, course categories, and user profiles. The central content area displays the 'System Advisor Model (SAM)' course, detailing its purpose and vision. The right sidebar contains a search bar, latest news, upcoming events, and recent activity.

2.3.2.B

News and Discussion Forums

← → ↻ ⚠ Not secure | odl.teriuniversity.ac.in/mod/forum/view.php?id=1619 ☆ ⚙ Error

You are logged in as Admin user (Logout)





Home Programmes Contact us FAQ


My home ▶ Courses ▶ SAM ▶ General ▶ News Forum - July 2020 ⓘ Search forums

Visible groups (CERT July 2017) All participants ▼

General news and information


[Add a new discussion topic](#)


Discussion	Started by	Group	Replies	Last post
Information on SAM Assignment	 Sapan Thapar	Jan 2020	0	Sapan Thapar Mon, 27 Apr 2020, 03:55 PM
SAM - Lecture recorded link	 Sapan Thapar	Jan 2020	0	Sapan Thapar Mon, 17 Feb 2020, 11:00 AM
Face-to-face/webinar on SAM	 Sapan Thapar	Jan 2020	0	Sapan Thapar Wed, 12 Feb 2020, 02:25 PM
SAM Study material	 Sapan Thapar	Jan 2020	0	Sapan Thapar Mon, 10 Feb 2020, 04:18 PM


 You are logged in as Admin user (Logout)


Week wise study modules

← → ↻ ⚠ Not secure | odl.teriuniversity.ac.in/course/view.php?id=72


 SAM

 People

 Participants

 Course Contacts

Coordinator

 Sapan Thapar

Solar water heating for residential or commercial buildings


Wind power (large and small)


Geothermal power and geothermal co-production


Biomass power

Since the first version released in 2007, more than 35000 people representing manufacturers, project developers, academic researchers and policy makers have downloaded the software.

The software tool are downloadable from <https://sam.nrel.gov/download>. Before starting of training program, you must download the software from the above link and install it on your PC and make sure that it is ready for use. In case any difficulty in downloading the training material, please write to course faculty, Dr Ishan Purohit at drishanpurohit@gmail.com.


 [News Forum - July 2020](#)


 [News Forum - July 2020](#)

 [Discussion Forum - Jan 2020](#)

1 Introduction

- About the software
- About downloading and installation
- Advantages of the software
- About different components and their use, available in the software library
- Assignment to become familiar with functions of different components in the software

 [Study Guide 1](#)

 [Study Guide2](#)

2 Not available

2.3.2.B

ac.in/course/view.php?id=29

eva



or the electricity requirements in many parts of the world. Between 1998 and 2004, worldwide, the wind industry grew at an average annual growth rate of nearly 20%. This week, we will discuss the physics of wind energy, wind system in India, wind measurement, instruments, data characteristics, and wind assessment tools.

3 **Week 5: Biomass resource**

Bioenergy is the general term for energy derived from materials such as wood, straw, oilseeds or animal wastes which are, or were recently, living matter, referred to collectively as biomass. Wood pellets, charcoal, bioethanol and biodiesel are all examples of energy-rich materials derived from biomass. All the Earth's living matter, its total biomass, exists in the thin surface layer called the biosphere. Although the majority of this is unavailable for human use, it is a store which is continually replenished by the flow of energy from the Sun, through the process of photosynthesis. This in effect takes in carbon dioxide from the air, and uses it to make living material, releasing oxygen in the process. Although only a small fraction of the solar energy reaching the Earth each year is fixed in this way, the amount fixed annually as chemical energy in biomass is nevertheless equivalent to between two and five times the world's total primary energy consumption. This week we will study about the various biomass resource.

4 **Week 6: Small hydro**

Water power has been contributing to local energy supplies for many centuries. It is, however, unique in that it became a major 'modern' energy source over a hundred years ago, supplying the input for some of the earliest power stations. Hydroelectricity has become a well-established technology, delivering about a sixth of the world's annual electricity supply. To introduce the terminology and the main features of hydroelectric systems, this chapter starts with an account of one modest hydro

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Using SAM to Re-calibrate Estimated Energy Production from Solar PV Array Based on Actual Electrical Energy Data

Kenneth Anderson, PE
The Energy Gleaners
Lake Oswego, Oregon

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CHAPTER 10 NUCLEAR POWER395

10.1 Introduction

In the year 2000, nuclear power stations were providing about a sixth of the world's total electricity. This proportion had remained fairly constant for most of the final decade of the twentieth century, with the total world output and nuclear output both rising at about 2.5% a year. However, the period from 1998 to 2001 has seen the nuclear output, whilst still increasing each year, failing to keep pace with the recent 3–4% growth rate of the world electrical industry as a whole.

At the end of 2001, there were over 400 reactors in commercial operation in 31 different countries, with a total output capacity of about 360 GW_e and an annual output of just under 2500 TWh. About a quarter of all the reactors are in the United States. France and Japan, each with over 50 reactors, together account for another quarter. The UK and Russia have about 30 each, and no other country has more than 20. Almost four-fifths of the world's reactors are of the light-water type (see Section 10.5 below).

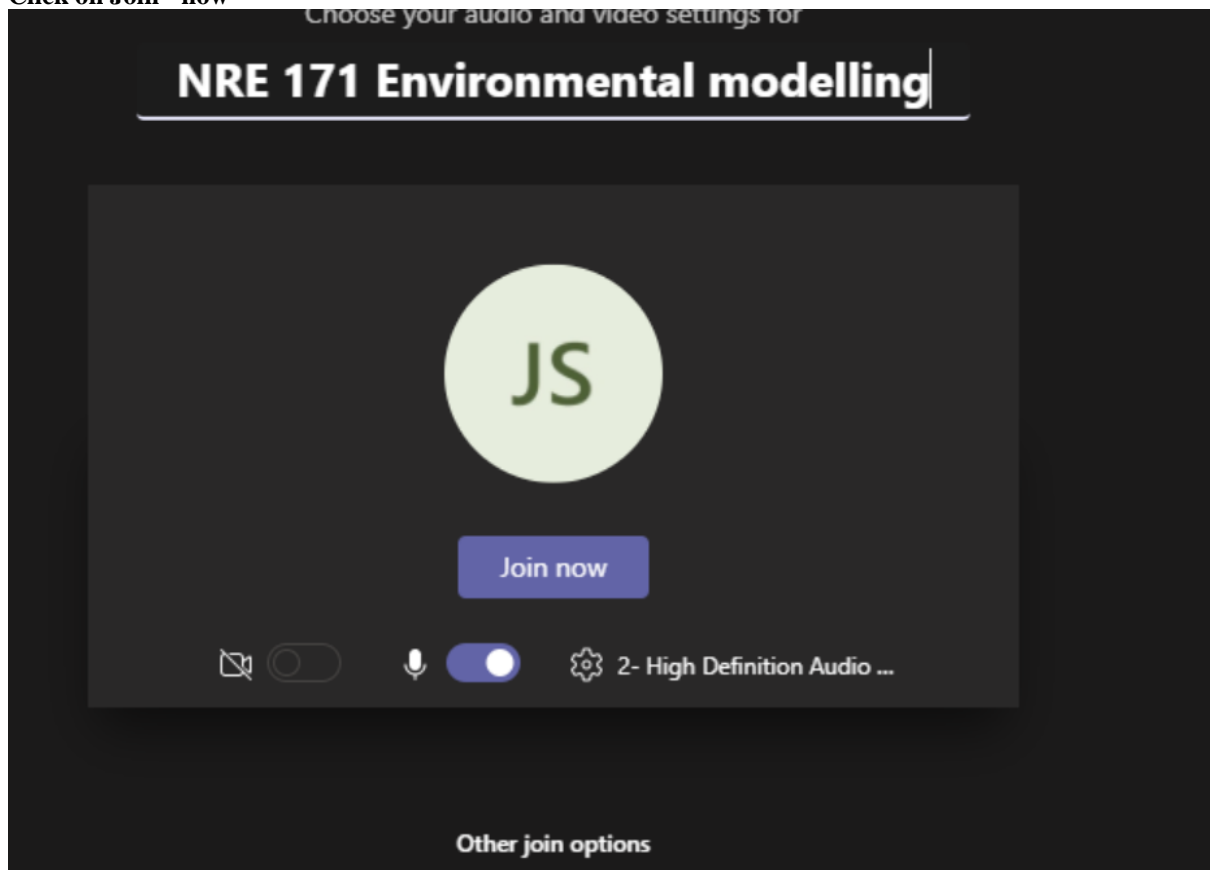
Nuclear power has been the subject of controversy since its inception. At a time when very little had yet been revealed to the general public, the scientists themselves were divided, with many who had worked on the atomic bombs having serious reservations about further development of the technology. The post-war period saw the introduction of more weapons of mass destruction and of nuclear power stations, and in the 1950s and 60s the nuclear debate attracted the degree of public attention that today we see devoted to genetic engineering. Nevertheless, as the above data

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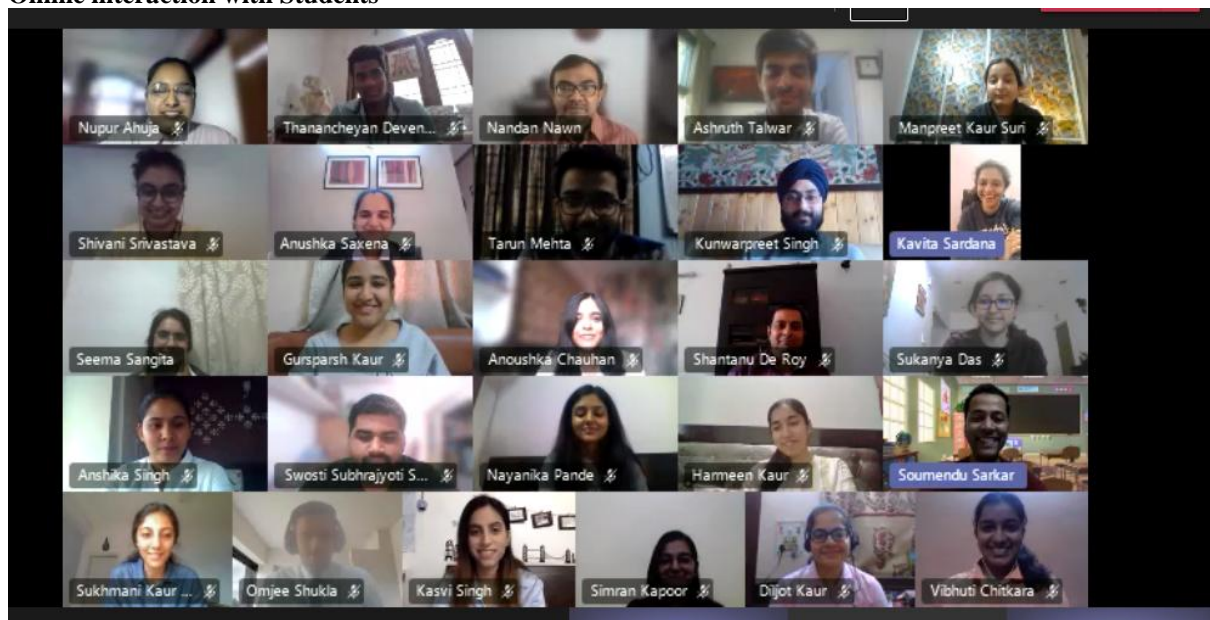


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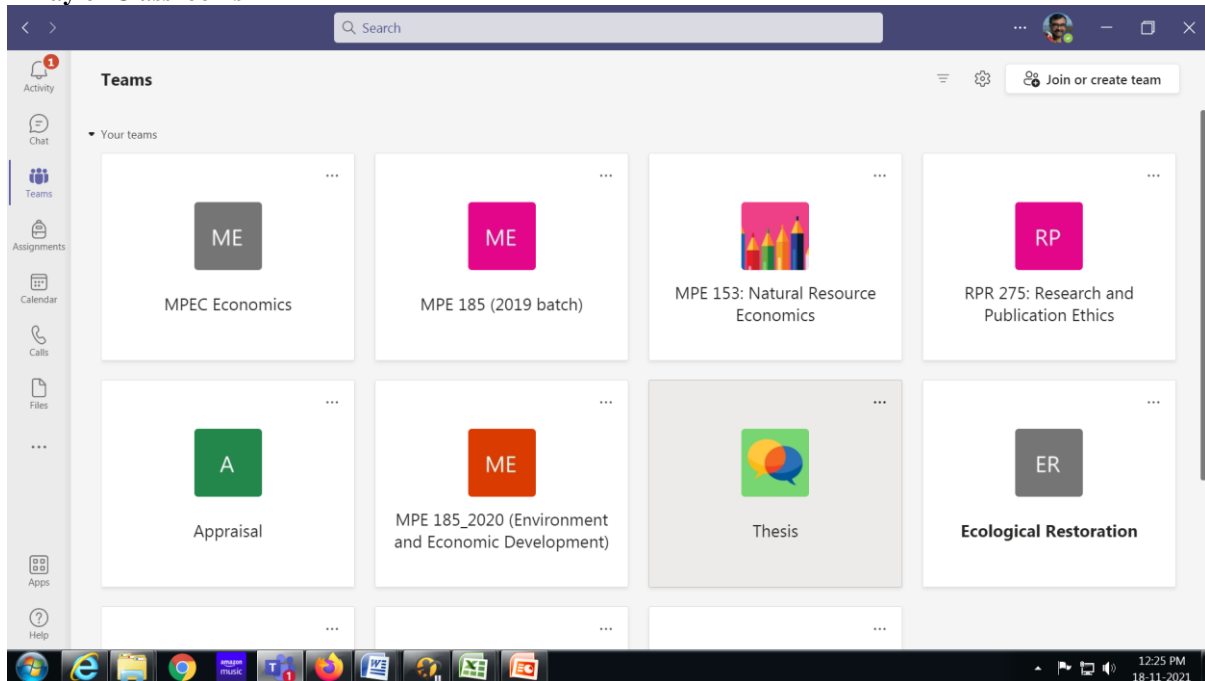
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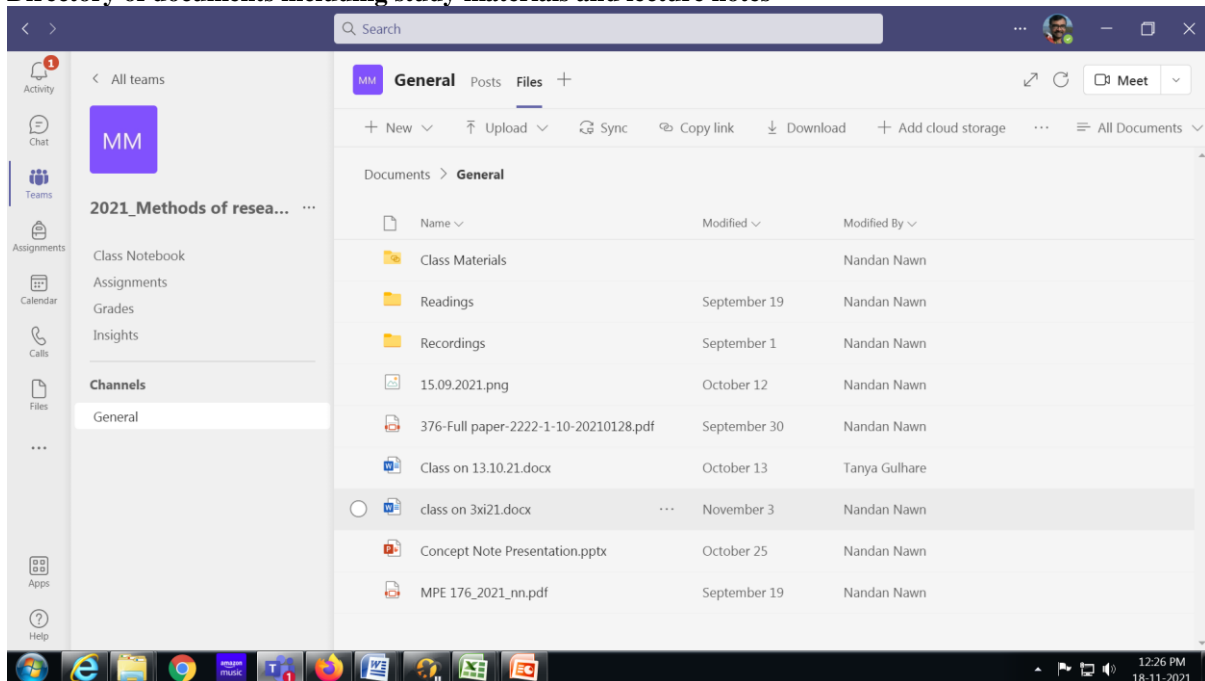
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Part B: From the faculty end

Array of Classrooms



Directory of documents including study materials and lecture notes



Recording of lectures and attendance sheet

Online examination

2.3.2.23