# TECNIA INSTITUTE OF ADVANCED STUDIES

## NAAC Accredited Grade 'A' Institute

### Internal Quality Assessment Cell
### IQAC

### -:BLENDED LEARNING & FLIPPED CLASSROOM:-

**BLENDED LEARNING**

**Objectives of the Module:**

On completion of this module, the learners will be able to

- understand the concept of blended learning and Flipped Classroom
- recognize the importance of flipped classroom in the 21st century
- elucidate the different types of blended learning and its pedagogical advantages
- critically analyse the different flipped classroom strategies and its uses
- create a flipped classroom lesson plan for the content transactions

**Introduction: Blended Learning**

Blended learning (also known as hybrid learning) is a method of teaching that integrates technology and digital media with traditional instructor-led classroom activities, giving students more flexibility to customize their learning experiences. Blended learning is a combination of offline (face-to-face, traditional learning) and online learning in a way that the one compliments the other. It provides individuals with the opportunity to enjoy the best of both worlds. For example, a student might attend classes in a real-world classroom setting and then supplement the lesson plan by completing online multimedia coursework. As such, the student would only have to physically attend class once a week and would be free to go at their own pace (and without worrying about scheduling issues).

Blended learning can increase access and flexibility for learners, increase level of active learning, and achieve better student experiences and outcomes. For teaching staff, blended learning can improve teaching and class management practices. A blend might include:

- face-to-face and online learning activities and formats
- traditional timetabled classes with different modes, such as weekend, intensive, external,
- well established technologies such as lecture capture, and/or with social media and emerging technologies
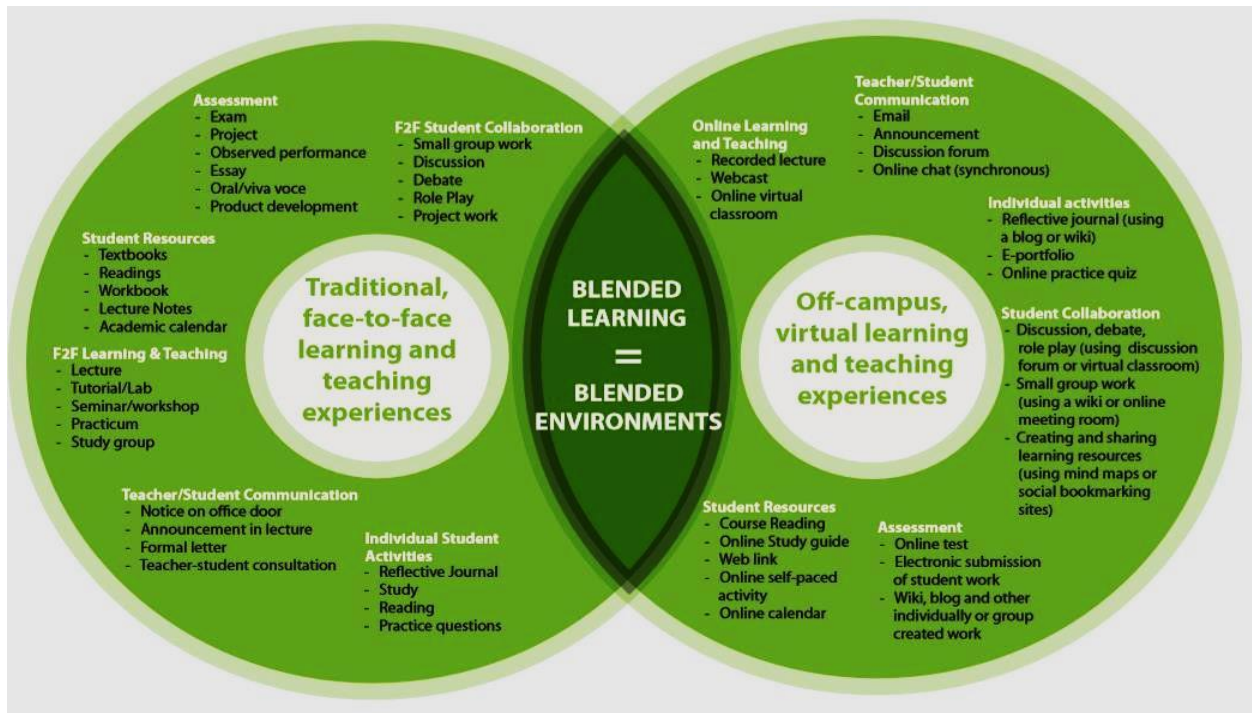- simulations, group activities, site-based learning, practical

*Figure 1: Possibilities for blended Learning*

*Spectrums of Blended Learning Strategies*

The following 4 Spectrums to be consider when blending training strategies will implementing.

- **Schedule:** Some training methods are synchronous, meaning everybody participates together at a set time. Others are asynchronous, and participants do not need to adhere to a set time.

- **Leading:** This aspect of training considers who is leading the learner through the material. Instructor-led training is great for complex topics, where it's useful to offer in-depth explanations or expert opinion in immediate response to questions as they arise. Self-paced training, on the other hand, is more of an individual pursuit and gives the learner control over when to move ahead in the material.

- **Participation:** Some training methods are aimed at learning in groups, while others are geared toward individual participation.

- **Technology:** It's almost impossible these days to hold training without the use of *any* technology, but there is still a range from less to more. A physical classroom with a whiteboard and paper hand-outs is on the low end of this spectrum, while an online classroom with VoIP and electronic books and virtual labs is clearly at the other end of this spectrum.

*Figure 2: Spectrums of Blended Learning Strategies*

**Process of Blended Learning**

Designing for blended learning requires a systematic approach, starting with:

1) Planning for integrating blended learning into our course, followed by;
2) Designing and developing the blended learning elements;
3) Implementing the blended learning design;
4) Reviewing (evaluating) the effectiveness of our blended learning design, and finally;
5) Planning for the next delivery of our course then involves improving the blended learning experience for both staff and students.
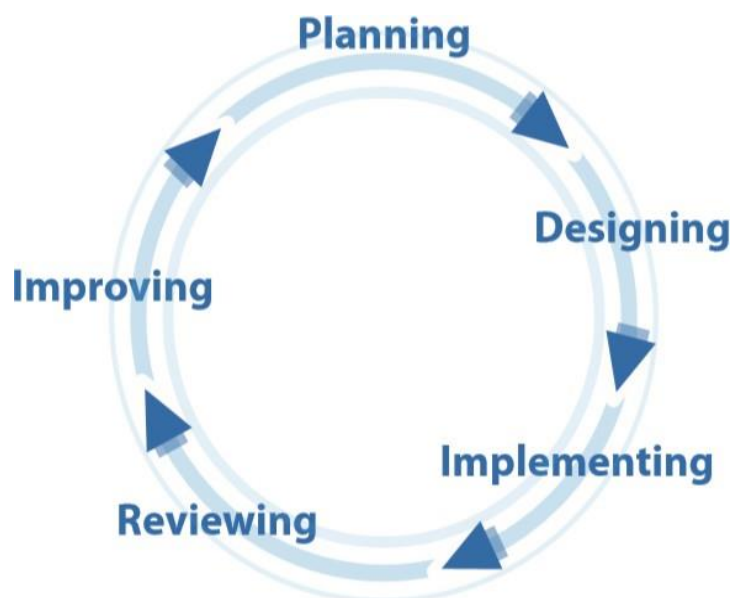


*Figure 3: Blended Learning design process*

**Types of Blended Learning**

There are different types of blended learning models, such as:

- **Online:** An instructor delivers lessons via an online platform using eLearning resources complemented by periodic face-to-face meets.
- **Rotation:** Students switch between self-paced learning and classroom learning.
- **Flexible:** Most learning takes places through the online platform, but instructors provide additional support through small group settings.
- **Online Lab:** The learners come together in a physical classroom and an online teacher delivers the lessons with the help of an onsite professional.
- **Personalized Blended Model:** This model straddles the physical and virtual spaces based on learner needs.
- **Self-blended Model:** Students take online classes to supplement their classroom learning.
- **Face-to-face Learning:** Lessons are delivered using online media by an onsite instructor.

**Benefits of Blended Learning**

The advantages of blended learning for students include increased learning skills, greater access to information, improved satisfaction and learning outcomes, and opportunities both to learn with others and to teach others. Recent research identifies the following key benefits of blended learning:

- Opportunity for collaboration at a distance: Individual students work together virtually in an intellectual endeavour as a learning practice.
- Increased flexibility: Technology-enabled learning allows for learning anytime and anywhere, letting students learn without the barriers of time and location but with the possible support of in-person engagement.
- Increased interaction: Blended learning offers a platform to facilitate greater interactivity between students, as well as between students and teachers.
- Enhanced learning: Additional types of learning activities improve engagement and can help students achieve higher and more meaningful levels of learning.
- Learning to be virtual citizens: Learners practice the ability to project themselves socially and academically in an online community of inquiry. Digital learning skills are becoming essential to be a lifelong learner, and blended courses help learners master the skills for using a variety of technologies.

# FLIPPED CLASSROOM

*"Flipped learning creates a student centered environment."*
**Education Review**

## Introduction: Flipped Classroom

In the traditional classroom, the teacher delivers new learning to the students face-to-face. Students listen, interact, take notes, and then consolidate new knowledge during homework or follow-up tasks.

The flipped classroom inverts traditional teaching methods, delivering instruction online outside of class and moving 'homework' in to the classroom. It's a 180 degree shift in 'traditional' education. Flipped learning is a pedagogical approach in which the traditional notion of classroom-based learning is inverted, so that students are introduced to the learning materials before class, with classroom time then being used to deepen understanding through discussion with peers and problem-solving activities facilitated by instructors.

**In the traditional classroom motto or manthra is**
*Teach at School*
*Work at Home*

**In the flipped classroom (inverts traditional teaching style)**
*Teach at Home*
*Work at School*

The flipped classroom model consists of two phases

- **At home:** Students watch lectures at home at their own pace, communicating with peers and teachers via online discussions, Learners gain control of the learning process through studying course material outside of class, using reading, pre-recorded video lectures (Using technological tools like MOODLE, Edmodo).

- **At Class:** Concept engagement takes place in the classroom with the help of the instructor. During class time, instructors facilitate the learning process by helping learners work through course material individually and in groups.
    Class time is freed up for:
      - student-centred learning activities
      - inquiry-based learning
      - project-based learning
      - collaborative work
      - teacher-assisted learning.

This flipped classroom approach supports instructors playing their most important role of guiding their students to deeper thinking and higher levels of application. A flipped class keeps student learning at the center of teaching.

**Flipped Classroom Vs Bloom's Revised Taxonomy:**

In terms of Bloom's revised taxonomy (2001), students are doing the lower levels of cognitive work (gaining knowledge and comprehension) outside of class, and focusing on the higher forms of cognitive work (application, analysis, synthesis, and/or evaluation) in class, where they have the support of their peers and instructor. This model contrasts from the traditional model in which "first exposure" occurs via lecture in class, with students assimilating knowledge through homework; thus the term "flipped classroom."
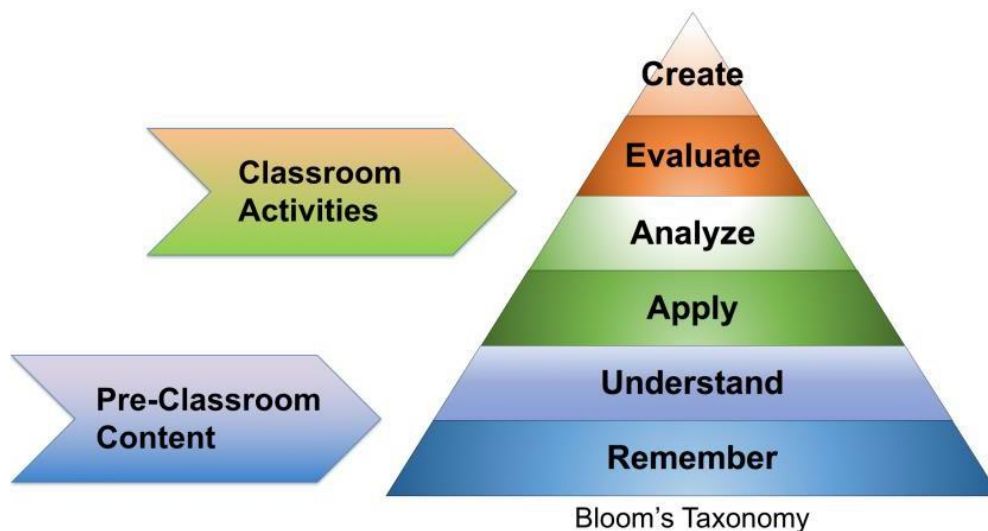


*Figure 4: Flipped Classroom – Bloom's Taxonomy*

**History**

Flipped teaching was started by two chemistry teachers Jonathan Bergmann and  Aaron Sams at Woodland Park high school in Colorado, USA. In order to cover the studies that missed the class lectures, they recorded the lectures and posted them online. The students who otherwise would have missed the classes benefitted from it.

Moreover, Aaron Sams found out there are software available which could record PowerPoint presentation along with sound. This is when Sams and Bergmann saw some opportunity of recording the lectures missed by students. In the beginning, they did it to reduce the burden of their work. However, this not only reduced their work but also helped students who missed the lectures. Also, many other teachers and students benefitted from the videos. The students all over the world started watching the videos and asking questions to them. This is when they started going to different portals and places and explaining about flipped classrooms. This led to the popularity of inverted classrooms.

**Elements of the flipped Classroom**

The following are the elements of the flipped classroom

1. **Pre-Class Activities**: It Provide an opportunity for students to gain first exposure prior to class. The mechanism used for first exposure can vary, from simple textbook readings to lecture videos to podcasts or screencasts. These videos can be created by the instructor or found online from YouTube, the Khan Academy, MIT's Open Course Ware, Coursera, or other similar sources.

2. **Provide Incentives:** Provide an incentive for students to prepare for class. The assignment task can vary, ranged from online quizzes to worksheets to short writing assignments, but in each case the task provided an incentive for students to come to class prepared by speaking the common language.

3. **Assessment Mechanism:** Provide a mechanism to assess student understanding. The pre-class assignments that students complete as evidence of their preparation can also help both the instructor and the student assess understanding. Pre-class online quizzes can allow the instructor to practice Just-in-Time Teaching, which basically means that the instructor tailors class activities to focus on the elements with which students are struggling. If automatically graded, the quizzes can also help students pinpoint areas where they need help.

4. **High Level Cognition:** Provide in-class activities that focus on higher level cognitive activities. If the students gained basic knowledge outside of class, then they need to spend class time to promote deeper learning. Students may spend time in class engaged in debates, data analysis, or synthesis activities. The key is that students are using class time to deepen their understanding and increase their skills at using their new knowledge.

**Four Pillars of Flipped Classroom:**

Flipped classroom approach has four different pillars. The properties of this pillars which its English correspondence is "Flip" are explained like this by referring first letters:

1. **F (Flexible Environment):** It indicates provision of time and place flexibity of learning. Flipped Learning allows for a variety of learning modes; educators often physically rearrange their learning spaces to accommodate a lesson or unit, to support either group work or independent study. They create flexible spaces in which students choose when and where they learn.

2. **L (Learning Culture):** In traditional teacher centered approach the source of knowledge is teacher. In flipped classroom approach there is transition from teacher centered approach to student centered approach, where in-class time is dedicated to exploring topics in greater depth and creating rich learning opportunities. As a result, students are actively involved in knowledge construction as they participate in and evaluate their learning in a manner that is personally meaningful.

3. **I (Intentional Content):** Educators use Intentional Content to maximize classroom time in order to adopt methods of student-centered, active learning strategies, depending on grade level and subject matter.

4. **P (Professional Educator):** Educators are reflective in their practice, connect with each other to improve their instruction, accept constructive criticism, and tolerate controlled chaos in their classrooms. While Professional Educators take on less visibly prominent roles in a flipped classroom, they remain the essential ingredient that enables Flipped Learning to occur.

**Flipped Classroom Models:**

The following are some of the unique models of how a teacher can invert their class.

1. **Standard Inverted Classroom:** Learners are assigned the "homework" of watching video / hearing the Audio lectures and reading any materials relevant to the next day's class content. During class time, students practice what they've learned through conventional schoolwork, with their instructors freed up for additional one-on-one time.

2. **Discussion-Oriented Flipped Classroom:** Instructors / Teachers assign lecture videos, as well as any other video or reading related to the day's subject (Via. Teacher Tube Video, TED Talks, YouTube videos, and other resources). Class time is devoted to discussion, debating and exploration of the subject. This can be an especially useful approach in subjects like history, art, or English.

3. **Demonstration-Focused Flipped Classroom:** Especially for the subject like chemistry, physics and mathematics that require learners to remember and repeat activities. It is most helpful to have a video demonstration to be able to rewind and rewatch. In this model, the teacher uses screen recording software (Screencast-O-Matic, Camtasia, CamStudio, Ezvid, TinyTake) to demonstrate the activity in a way that allows students to follow along at their own pace.

4. **Faux-Flipped Classroom:** This flipped classroom model instead has those students watch lecture video in class, giving them the opportunity to review materials at their own pace, with the teacher able to move from student to student to offer whatever individual support each young learner needs.

5. **Group-Based Flipped Classroom:** This model provides a new element to help students to learn from each other. The class starts with lecture videos and other resources shared before class. The shift happens when students come to class, teaming up to work together on that day's work / assignment like a collaborative learning model. This format encourages students to learn from one another and helps students to not only learn the right answers are but also how to actually explain to a peer why those answers are right.

6. **Virtual Flipped Classroom:** Some college and university professors now share lecture video for student viewing, assign and collect work via online learning management systems (MOODLE, Google Classroom, Edmodo) and simply require students to attend office hours or other regularly scheduled time for brief one-on-one instruction based on that individual student's needs. Here all the transactions through online therefore it is come under the umbrella of virtual flipped classroom model.

7. **Flipping The Teacher:** All the video created for a flipped classroom doesn't have to begin and end with the teacher. Students too can make use of video to better demonstrate proficiency. Assign students to their record practice role-play activities to show competency, or ask each to film themselves presenting a new subject or skill as a means to "teach the teacher".

**Tools of the Flipped Classroom: Technology**

Technology is the primary tool of the flipped classroom. Students need access to technology to be able to watch videos at home; equally important is educators' access to, and comfort with, the technology necessary to film, edit, and upload their videos. There are a variety of different video recording devices that teachers may use. For educators who already use PowerPoint or Smart Boards in their classroom, the use of screen casting software that records screen movement and allows for narrations to be recorded may be the most convenient way to create lecture videos. Without the technological integration, we could not implement the flipped classroom. Technology is one of the key components of the flipped approach. The following are some of the technological tools are used for the implement the flipped classroom strategies.

**Video Creation Tools:**

There are several video creation tools. Some of them are available online for free while some of them should be purchased. Most of these video creating tools are device specific. Some of the popular tools are;
- Screen-Cast-O-Matic,
- Camtasia PC,
- TechSmith Relay,
- Office Mix,
- Adobe Presenter.

**Video Hosting Tools:**

After forming the video, it should be placed online for access of students. There are several sites to store video online. YouTube is considered to be the most popular one to host videos. It is widely used around the world by teachers, students and other professionals. Some of video sites are;

- YouTube,
- TeacherTube,
- Screencast.com,
- Acclaim,
- GoogleDrive.

**Video Interaction Tools:**

Some of the tools that provide teachers to access some information such as which student watched which lecture video, how long he watched, how he answered the questions in the video. Some of the population video interaction tools are listed below;

- EduCanon,
- EdPuzzle,
- Office Mix,
- Verso,
- TechSmith Relay,
- Adobe Presenter,
- Google Apps for Ed

**Learning Management:**

As created videos can be sent to video hosting site, they can be presented to access by using learning management system (LMS). LMS are not only broadcast videos, also provide interaction with students. Some of the most population tools are given below:

- Moodle,
- Sakai,
- Blackkboard,
- VersoApp,
- Schoology,
- canvas,
- My Big Campus,
- Haiku Learning,
- Google Classroom

**Potential Benefits of Flipped Classroom**

The value of a flipped class is in the repurposing of class time into a workshop where students can enquire about lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities. During class sessions, instructors function as coaches or advisors, encouraging students in individual enquiry and collaborative effort. The wide range of potential benefits of using a flipped classroom includes, but is not limited to, the fact that it can:

1.  **Deep Learning:** As a result of learners taking accountability and responsibility, interacting or debating meaningfully and often with their instructor and peers, and getting and giving instant feedback, they acquire a deeper understanding of the content and how to use it.

2.  **Active Participation:** In the flipped classroom, the learner's role shifts from passive recipient to active constructor of knowledge, giving them opportunities to practice using the intellectual tools of the discipline.

3.  **Increasing Interactions:** Flipped classroom provides an opportunity to the learners' work together applying course concepts with guidance from the instructor. This increased interaction helps to create a learning community that encourages them to build knowledge together inside and outside the classroom.

4.  **Instant Feedback:** With more opportunities for students to apply their knowledge and therefore demonstrate their ability to use it, gaps in their understanding become visible to both themselves and the instructor.

5.  Instructors have more time to help students and explain difficult concepts.

6.  **Own Space Learning:** It can be used to revisit important concepts and content, checking understanding and clearing up misconceptions. It teach students to take responsibility for own learning

7.  **Active Engagement:** It increases student-to-student engagement. Class time freed up of lectures allows for increased faculty to student, and student to student interactions. There is also more time for extended classroom discussion and exercises. This allows students to engage with concepts, learning materials, and peers in the classroom. Thus, increased student support is an implicit result of the Flipped Classroom.

8.  **Efficient use of class time** - Lecture content, in the form of videos of manageable length, can be provided outside of the classroom. Shorter videos have the benefit of distilling a given topic, and topics can be broken up into subtopics. As this happens, traditional passive learning takes place outside of the classroom, and class time can be freed up to increase meaningful engagement with the students. Faculty members have more time to interact with students clarify learning point, and additional learning objectives can be incorporated, as can active learning.

**Challenges of Flipped Classroom**

Challenges that can arise when using flipped classrooms include:

1.  **Increased work load for the instructor**: Time, expertise and effort are needed to create/source videos. Time and effort is required to rethink and prepare both

pre-class and in-class activities; however, activities can often be reused without too much effort the next time the class is offered. It requires careful preparation, and the right mix of out-of-class and in-class elements.

2. **Lack of Technology and Internet**: Technology and internet are the major components of flipped classes. There are so many places and schools which do not have access to computers and internet. If they are not available for students, the whole idea of flipping a classroom will be ineffective. Equipment and access for students to view video lectures may be an issue.

3. **Not for all Subject and Content:** It is not appropriate for some types of content.

4. **Students not being prepared**: Students may not be prepared because Students may not immediately understand the value of this model. Hopefully instructors have taken the requisite steps to ensure that students are prepared for class, but if students do come to class unprepared, don't re-lecture -- move forward anyway. Once students see that you are serious about supporting active learning in the classroom, they will likely be better prepared the next time.

5. **Not all active-learning strategies are feasible in large classes**: The activities that can be feasibly facilitated in a really large class are fewer than those in a small class, but there are still many ways to engage students in applying concepts and peer learning. A mixture of mini-lectures and think-pair-share and/or the use of clickers can be effective even in really large classes

6. **Classroom Space:** There may be problems with the availability of class spaces that support active and collaborative work.

7. **Instructors might need to decrease the course content**. With more student participation and dialogue, instructors may find that they are not able to "cover" as much material as they have in that past, so rethinking the learning outcomes of the course may be necessary. The concepts that are learned are likely to be retained for longer and applied more effectively with the active learning component.

8. **Online Distractions:** Students require internet to watch videos online. Because students spend time online this may lead to regarding social media, YouTube videos, and computer games online.

**Tips to implement flipped classroom effectively**

- Communicate the rationale behind the flipped classroom to the learners
- Provide incentives for learners to prepare for class.
- Provide clear connections between in-class and out-of-class activities.
- Ensure that classroom activities are clearly defined and well-structured to suit the purpose.
- Allow sufficient time for learners to carry out their assignments.

- Provide facilitation and guidance that supports a learning community.
- Provide prompt and adaptive feedback on group and project work.
- Utilise technologies that are familiar and easy to access.

**The Role of Teacher in Flipped Classroom Approach**

The most important factor in flipped classroom approach is the role of teacher. The roles of flipped classroom educators are presented below;
- Creating learning condition based on questioning
- Instead of transferring knowledge directly, being a guide to make learning easy
- Making one to one interaction with students
- Correcting misunderstandings
- Individualizing learning for each student
- Using technological equipments suitable for learning condition
- Creating interactive discussion conditions
- Increasing participation of students
- Sharing lecture videos as out of class activity
- Providing feedback by using pedagogical strategies

**The Role of Student in Flipped Classroom Approach**

In flipped classroom approach student transforms from passive receiver of knowledge to active promoter of knowledge. In this approach the roles of students are expressed below;

- Taking their own learning responsibilities
- Watching lecture video as before the course and preparing for the course by using learning materials
- Learning at his own learning speed
- Making necessary interactions with his teacher and friends, taking and giving feedback
- Participating discussions within class
- Participating team working

**FLIPPED CLASS IMPLEMENTATION PLAN STEPS**

| | |
|---|---|
| 1. *Select Topic* | • What is the topic/lecture that you are planning to flip? |
| 2. *Identify the learning objectives* | • What are the learning outcomes for the topic/lecture you are flipping? |
| 3. *Possibility of implement the pre-class activity* | • How far ahead does the pre-class activity need to be released/made available? |
| 4. *Pre-Class Activity - Concept* | • What are the key concepts you want to cover in the pre- class activity? |
| 5. *Determine Your Technology / Media* | • How will the pre-class activity be designed to help participants <u>remember</u> and <u>understand</u> key concepts? *(will you adapt a current PPT, make or find a short video, assign a pre-reading with guiding questions?)* |
| 6. *Create Videos and Content* | • Check your timelines for developing the pre-class activities – including creating the interactive checkpoints |
| 7. *Fix the due date for accessing the pre-class activity* | • What is the 'due date' for the activities to be completed? *(factor in how much time you will need to analyse/act on responses)* |
| 8. *Plan for Class Room (f2f) Activity* | • How will the face to face class (f2f) be designed to help students <u>analyse</u> and <u>apply</u> the key concepts? <br>• What mini-lectures will you need to adapt/develop for the f2f class? |
| 9. *Class Activity Resources / strategies* | • What resources / strategies will you need to adapt/develop for the active learning parts of the f2f class? |
| 10. *Evaluation* | • How will you evaluate the effectiveness of your flipped class? |

**Conclusion**

The flipped classroom is an instructional strategy that requires a reconceptualization of the traditional approach to teaching and learning. This transition calls for a significant investment on the part of teachers and students; the time that it takes to make the videos; time to re conceptualize class time; and time for students to become accustomed to a new model of teaching and learning.

**Summary of the Module**
Blended learning can increase access and flexibility for learners, increase level of active learning, and achieve better student experiences and outcomes. For teaching staff, blended learning can improve teaching and class management practices. A blend might include:
- face-to-face and online learning activities and formats
- traditional timetabled classes with different modes, such as weekend, intensive,

external,
- well established technologies such as lecture capture, and/or with social media and emerging technologies
- simulations, group activities, site-based learning, practical

The Flipped Classroom is a blended learning model in which traditional ideas about classroom activities and homework are reversed, or "flipped." In this model, instructors have students interact with new material for homework first. They then use class time to discuss the new information and put those ideas into practice.

The flipped classroom can address the needs of struggling students by allowing teachers to personalize the students' education.
- Flipped Learning transfers the ownership of the learning to the students
- Flipped Learning personalizes learning for all students
- Flipped Learning gives teachers time to explore deeper learning opportunities and pedagogies with their students
- Flipped Learning makes learning (not teaching) the center of the classroom
- Flipped Learning maximizes the face to face time in the classroom

## RESOURCES:

### Blended Learning:
- https://en.wikipedia.org/wiki/Blended_learning
- https://www.teachthought.com/learning/12-types-of-blended-learning/
- http://www.hrpub.org/download/20161230/UJER16-19508256.pdf
- https://www.education.vic.gov.au/documents/about/research/blendedlearning.pdf
- https://www.westernsydney.edu.au/data/assets/pdf_file/0004/467095/Fundamentals_of_Blended_Learning.pdf

### Flipped Classroom:
- https://en.wikipedia.org/wiki/Flipped_classroom
- https://www.teachthought.com/learning/the-definition-of-the-flipped-classroom/
- https://www.washington.edu/teaching/topics/engaging-students-in-learning/flipping-the-classroom/
- https://flippedlearning.org/wp-content/uploads/2016/07/FLIP_handout_FNL_Web.pdf
- https://files.eric.ed.gov/fulltext/EJ1089137.pdf
- https://www.newpaltz.edu/media/the-benjamin-center/P.Brief_2020Vision-Flipped%20classroom.pdf

*****
***
*