

# How can the course file method be made smoother?

## 1. Problem Statement:

A course file is essentially a record that contains all types of relevant facts about the batch, assessment, and overall outcomes of the course in an academic setup. Course File is basically the “**Geeta**” of the faculty member for a particular batch he/she is teaching.

A course file provides you with a leg up on the competition when it comes to the course's overall curriculum and administration. A course file will provide you with all of the information you require to make an informed selection like COs, CO and PO mapping, Target of COs and attainment, Lecture Plan, Lecture delivery schedule, Assignments, Sessional Papers and End Term papers. The data you have about the course and students are used to determine delivery mechanisms, change or expand the curriculum, provide more learning materials, use different teaching styles, and so on.

Faculty members are normally required to retain a course file at all universities/colleges. **Maintaining a hard copy of one, however, is a very difficult task as there are a lot of documents to include, a lot of data to analyze, and a lot of time to put in.**

## 2. Existing Course Files Contents:

S.no.	CONTENT
<b>PART A</b>	
1.	ABES Mission, Vision statement & Quality Policy – <i>one copy</i>
2.	Department Mission & Vision – <i>one copy</i>
3.	List of Students – ( <i>double column format</i> )
4.	PEOs, POs, PSOs, Course Outcomes and Mapping with POs/PSOs – <i>one copy</i>
5.	Last year CO attainment and suggested action- <i>one copy</i>
6.	Academic calendar – <i>one copy</i>
7.	University Evaluation Scheme – <i>one copy</i>
8.	University Subject Syllabus – <i>one copy</i>
9.	Class Time Table – <i>one copy</i>
10.	Faculty Time Table – <i>one copy</i>
11.	Lecture Plan along with Sessional Test Schedule (Full Unit/ Half Unit) – <i>one copy</i>
12.	Lecture Delivery Schedule with plan summary of assignments/Test/Quiz
13.	Assignments/ Test/ Quiz with Answer key – ( <i>with CO &amp; KL mapping</i> )
14.	Assignment/ Test/ Quiz Marks & CO Attainment
15.	Tutorial sheets for numerical problems
16.	Sessional Tests/ Pre-University Exam Question Papers – ( <i>With solution for numerical problems</i> )
17.	Sessional Tests/ Pre-University Exam - Award Sheet
18.	Sessional Tests/ Pre-University Exam - Gap Analysis and CO attainment

19.	List of Weak Students and their Make-up Classes ( <i>after each sessional exam</i> )
20.	Review of University Question Paper ( <i>and proofs of correspondence with University in case of any discrepancy</i> )
21.	Attendance Sheets – Overall
22.	Evaluated Answer Scripts – ( <i>2 Samples</i> )
23.	Course Exit Survey and analysis
24.	CO attainment and recommendations

### **PART B**

1.	Faculty Notes (Handout, PPTs in Separate File) – ( <i>for each faculty; common ppt/ notes to be marked accordingly</i> )
2.	Books ,web content, other than Text Book frequently referred to – ( <i>faculty wise</i> )
3.	Previous Years Question Papers ( UPTU - 4 Years) → Descending Order – <i>one copy each</i>

*Note: Contents in Part A are to be placed section wise*

**Note:** Proposal is being prepared considering all the basic minimum points available in the course file format of ABESEC.

#### **3. Team formation:**

Prof. Divya Mishra (HOD-CSE)

Mr. Ravi Kumar

Mr. Prabhat Singh

Mr. Sunil Kumar

Ms. Jasmine

#### **4. Proposed Solution:**

Course File Automation System will take care of all the diverse needs and requirements of course file creation. So regardless of the university or institution, it will be able to produce the course file the way we want.

Faculty members will be able to create a course file with all of the necessary information with a single click. **Faculty members can print out a custom designed course file in a few minutes rather than spending hours gathering and processing data.** Simply select which data you want to include in the course file and click the button.

**As we all know, course files are generated for each Theory and Lab subject for each batch.**

#### **Step by Step Process to Print a Course file:**

**Step 1:** As we log in to our faculty account, we will have a comprehensive view of all the batches we teach as well as the batches that belong to our department.

**Step 2:** Choose a batch here to develop a course file for the subject we teach for that batch.

**Step 3:** Once we enter the batch, the course file settings can be found on the menu. Simply click that, we can pick the details we want in our course file (samples/formats of LDS, CO PO Mappings etc. Will be added), and then click the course file option down below.

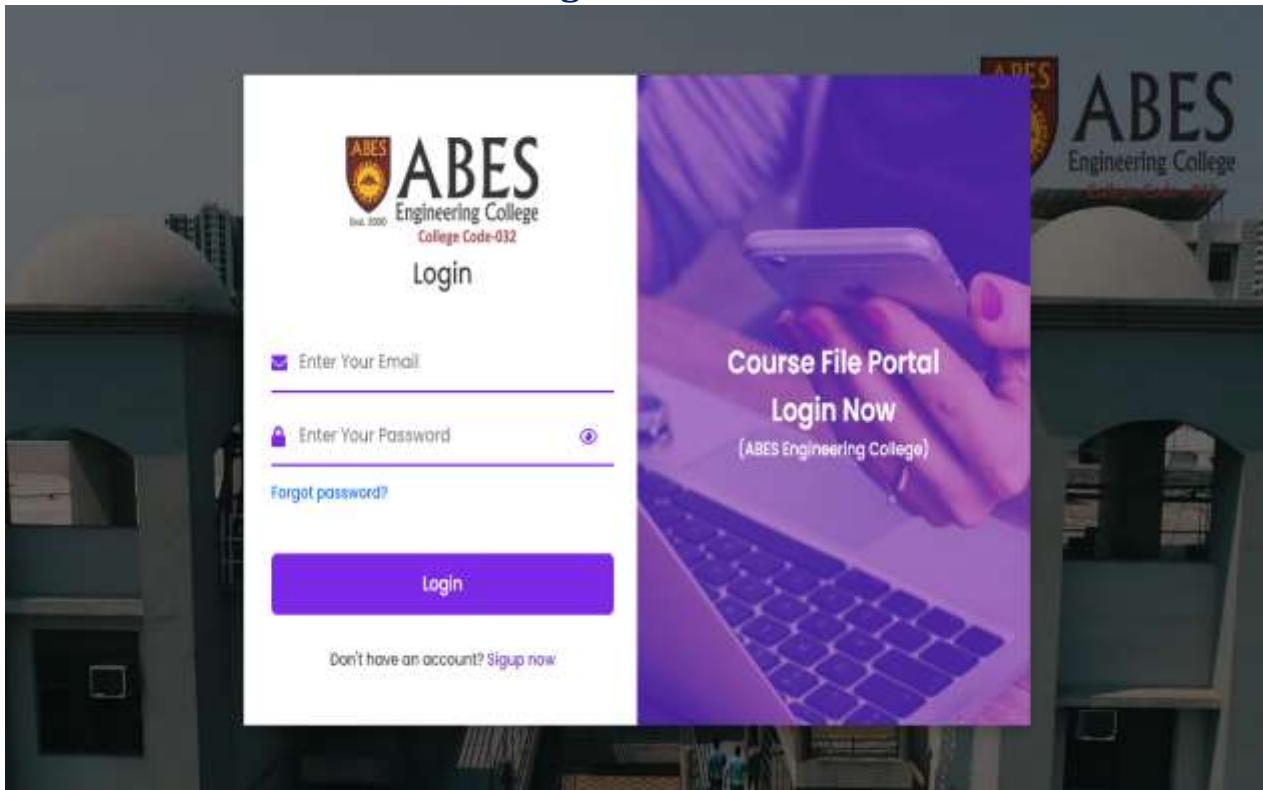
**Step 4:** To make the procedure easy, we can add details like Vision, Mission, Program Objectives and also options to add course objective, course outcomes, syllabus, and all will be given. To include such details, we won't have to go anywhere else.

**Step 5:** After creation, just click on the print button to get the course file.

**That's how simple it'll become to get a course file.**

## 5. Course File Portal Working Module (Step by Step Screenshot):

### Login Screen



### Content 1- ABES Mission and Vision Statement

A screenshot of the ABES Course File Portal showing the 'Create a File' section. The interface has a blue header bar with the ABES logo and a user profile for 'Ram (12345)'. On the left, a vertical sidebar menu includes 'Home', 'Dashboard', 'View File', and 'Logout'. The main content area is titled 'Create a File' and contains several input fields: 'DAA Course File', 'RCS-502', '2020-21', and 'Event'. Below these is a section for uploading files, with a 'Browse...' button followed by the path 'Vision Mission College-converted.pdf'. A 'Create Course File' button is located next to the upload field. A message at the bottom indicates that the file 'Vision Mission College-converted.pdf' has been uploaded.

## Content 2- Department Mission and Vision Statement

The screenshot shows a 'Create a File' form. The left sidebar includes icons for Home, Dashboard, View Files, and Logout. The main form fields are: DAA Course File (RCS-502), RCS-502, 2020-21, Even, and Upload deptMissVision File (Browse... Dep Mission Vision.pdf). A 'Create Course File' button is present, and a message '+ Dep Mission Vision.pdf Uploaded' is displayed.

## Content 3- List of Students

The screenshot shows a 'Create a File' form. The left sidebar includes icons for Home, Dashboard, View Files, and Logout. The main form fields are: DAA Course File (RCS-502), RCS-502, 2020-21, Even, and Upload studentList File (Browse... Student List.pdf). A 'Create Course File' button is present, and a message '+ Student List.pdf Uploaded' is displayed.

## Content 4 - PEO's, POs, PSOs of the Department

The screenshot shows a 'Create a File' form. The left sidebar includes icons for Home, Dashboard, View Files, and Logout. The main form fields are: DAA Course File (RCS-502), RCS-502, 2020-21, Even, and Upload acadCalender File (Browse... 2. Vission Mission PEO PO PSOs.pdf). A 'Create Course File' button is present, and a message '+ 2. Vission Mission PEO PO PSOs.pdf Uploaded' is displayed.

## Content 5 - Prerequisite, Course Outcome and Mapping of CO with POs/PSOs

The screenshot shows a user interface for creating a course file. On the left is a vertical sidebar with icons for Home, Dashboard, View Files, and Logout. The main area has a blue header with a logo, a user icon, and the text "Ram (12345)". Below the header is a title "Create a File". The form fields include:

- DAA Course File: RCS-502
- Year: 2020-21
- Semester: Even
- Upload CO-PO Mapping File:
  - Browse... CO PO Mapping Format DAA-1.pdf
  - Create Course File
- A message: "CO PO Mapping Format DAA-1.pdf Uploaded"

## Content 7- Academic Calendar

The screenshot shows a user interface for creating an academic calendar. The layout is identical to the Content 5 page, with a sidebar and a main creation form. The form fields are:

- DAA Course File: RCS-502
- Year: 2020-21
- Semester: Even
- Upload acadCalender File:
  - Browse... ACADEMIC CALENDAR(Odd Sem. 2018-19).pdf
  - Create Course File
- A message: "ACADEMIC CALENDAR(Odd Sem. 2018-19).pdf Uploaded"

## Content 8- University Syllabus

The screenshot shows a user interface for creating a course file. On the left is a vertical sidebar with icons for Home, Dashboard, View Files, and Logout. The main area has a blue header bar with a back arrow and a user profile for 'Ram (12345)'. The title 'Create a File' is displayed. Below it, there are four input fields: 'DAA Course File:' containing 'RCS-502', '2020-21', and 'Even'; and an 'Upload uniSyllabus File' section with a 'Browse...' button showing 'DAA-Syllabus.pdf' and a 'Create Course File' button. A success message at the bottom says '+ DAA-Syllabus.pdf uploaded'.

## Content 11- Lecture Plan

This screenshot shows the same 'Create a File' interface as the previous one, but for a 'Lecture Plan'. The sidebar and header are identical. The main area shows the same four input fields and the 'Upload lecPlan File' section. The 'Browse...' button shows 'DAA LP.pdf' and the 'Create Course File' button. A success message at the bottom says '+ DAA LP.pdf Uploaded'.

## Content 12 - Lecture Delivery Schedule

The screenshot shows a user interface for creating a course file. On the left is a vertical sidebar with icons for Home, Dashboard, View Files, and Logout. The main area has a blue header bar with a logo and the name "Ram (12345)". Below the header, the title "Create a File" is displayed. There are four input fields: "DAA Course File" containing "RCS-502", "2020-21", and "Even". Below these is a section titled "Upload LecDeliverySchedule File" with a "Browse..." button showing "DAA LDS.pdf" and a "Create Course File" button. A message at the bottom indicates the file was uploaded successfully.

## Content 13- Assignment/Test/Quiz with Answer Key

This screenshot shows the same "Create a File" interface as the previous one. The sidebar and header are identical. The main area has the title "Create a File" and four input fields: "DAA Course File" containing "RCS-502", "2020-21", and "Even". Below these is a section titled "Upload Assignments File" with a "Browse..." button showing "Assignment 1 DAA Odd Sem 2019-20.pdf" and a "Create Course File" button. A message at the bottom indicates the file was uploaded successfully.

## Content 14 - Assignment/Test/Quiz Marks

The screenshot shows a user interface for creating a course file. On the left is a vertical sidebar with icons for Home, Dashboard, View Files, and Logout. The main area has a blue header bar with a back arrow icon and a user profile for 'Ram (12345)'. Below the header, the title 'Create a File' is displayed. A form contains fields for 'DAA Course File' (set to 'RCS-502'), 'Year' (set to '2020-21'), and 'Semester' (set to 'Even'). An 'Upload assignmentMarks File' section includes a 'Browse...' button followed by the path 'Assignment Marks.pdf', a file input field, and a 'Create Course File' button. A success message at the bottom indicates 'Assignment Marks.pdf Uploaded'.

## Content 23 - Course Exit Survey

The screenshot shows a user interface for creating a course file. The layout is identical to the previous screenshot, with a sidebar on the left and a main area with a blue header bar. The title 'Create a File' is displayed. The form fields for 'DAA Course File' (RCS-502), 'Year' (2020-21), and 'Semester' (Even) are present. An 'Upload courseExitSurvey File' section includes a 'Browse...' button followed by the path 'Course Exit Survey Section A.pdf', a file input field, and a 'Create Course File' button. A success message at the bottom indicates 'Course Exit Survey Section A.pdf Uploaded'.

## Uploading Files Together:

The screenshot shows a user interface for creating a file. At the top right is a profile icon for 'Ram (12345)'. Below it, the title 'Create a File' is displayed. There are four input fields containing 'DAA Course File', 'RCS-502', '2020-21', and 'Even'. A section titled 'Upload sessQuestionPaper File' contains a 'Browse...' button followed by the message '13 files selected.' and a 'Create Course File' button. A list of 13 uploaded files is shown below, each with a small preview icon.

- 2. Vission Mission PEO PO PSOs.pdf Uploaded
- ACADEMIC CALENDAR(Odd Sem. 2018-19).pdf Uploaded
- Assignment 1 DAA Odd Sem 2019-20.pdf Uploaded
- Assignment Marks.pdf Uploaded
- CO PO Mapping Format DAA-1.pdf Uploaded
- Course Exit Survey Section A.pdf Uploaded
- DAA LDS.pdf Uploaded
- DAA LP.pdf Uploaded
- DAA Syllabus.pdf Uploaded
- Dep Mission Vission.pdf Uploaded
- PEOPSO.pdf Uploaded
- Student List.pdf Uploaded
- Vission Mission College-converted.pdf Uploaded

## Viewing Uploaded Files:

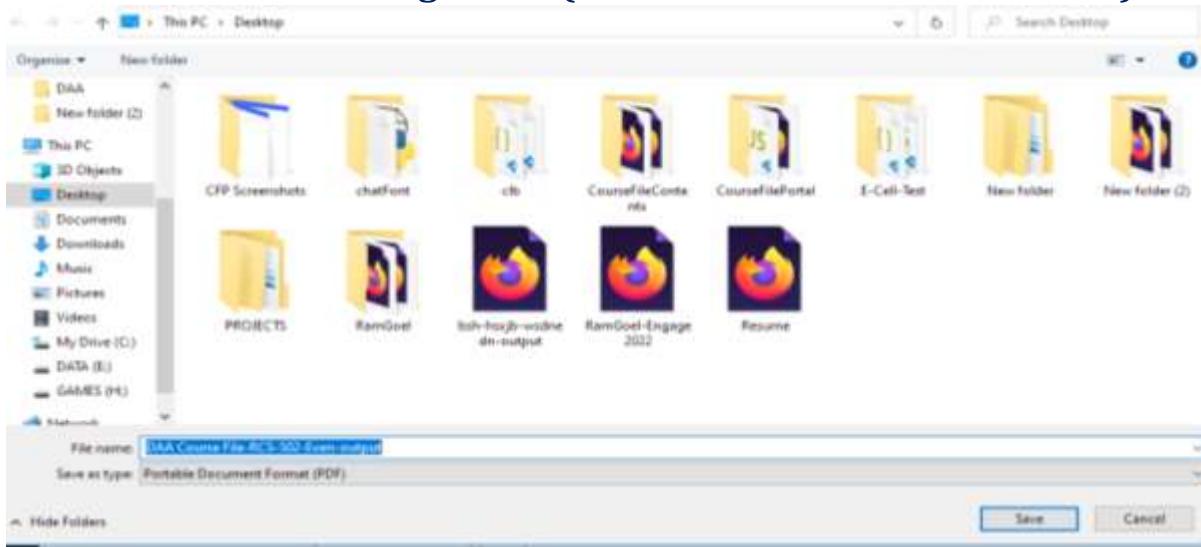
The screenshot shows a list of uploaded files under the heading 'All Files'. On the left is a vertical sidebar with icons for Home, Dashboard, View File, and Logout. The main area lists five files with their details and three action icons (trash, download, and share) to the right of each entry.

File Name	Uploader	Action
2. Vission Mission PEO PO PSOs.pdf	Ram	
ACADEMIC CALENDAR(Odd Sem. 2018-19).pdf	Ram	
Assignment 1 DAA Odd Sem 2019-20.pdf	Ram	
Assignment Marks.pdf	Ram	
CO PO Mapping Format DAA-1.pdf	Ram	

## If No Files are Uploaded



## Download of Merged File (of Name Provided in Dashboard)



# Merged Course File Preview

The screenshot displays a merged course file preview across three panels. Each panel contains the ABES Engineering College logo and the title "ABES Engineering College, Ghasialbad Department of Computer Science & Engineering".

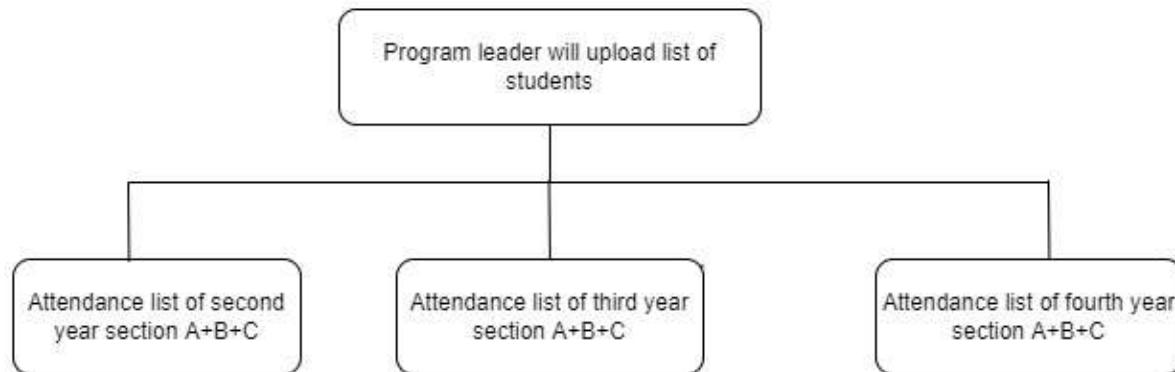
- Panel 1:** Contains sections for "Vision and Mission of the Department" and "Aims of Course".
- Panel 2:** Contains sections for "Programme Educational Objectives (PEOs)" and "Programme Outcomes".
- Panel 3:** Contains sections for "Programme Outcomes" and "Programme Learning Outcomes (PLOs)".

The "Programme Educational Objectives (PEOs)" section lists 7 objectives, and the "Programme Outcomes" section lists 10 outcomes.

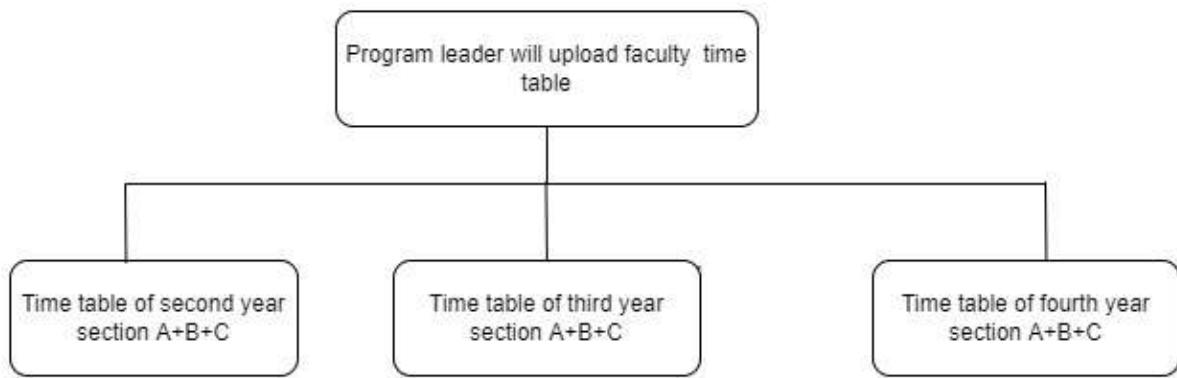
**Full PDF File - [Course File Document](#)**

**6. Work Flow Diagram for maintaining common minimum contents of Course Files at a single place (Sample):** Access available to all the faculty members of the department in order to avoid duplicate work.

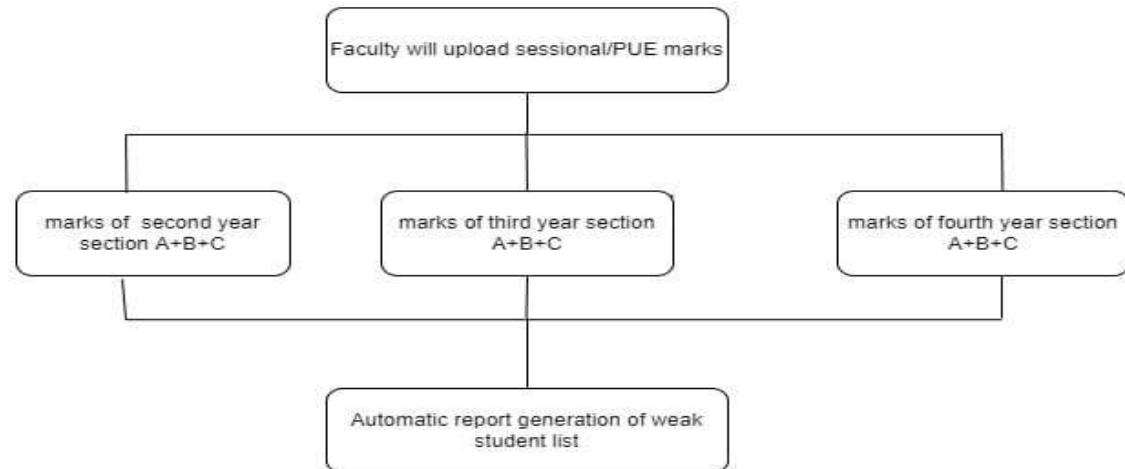
**a. Uploading of List of Students on portal:**



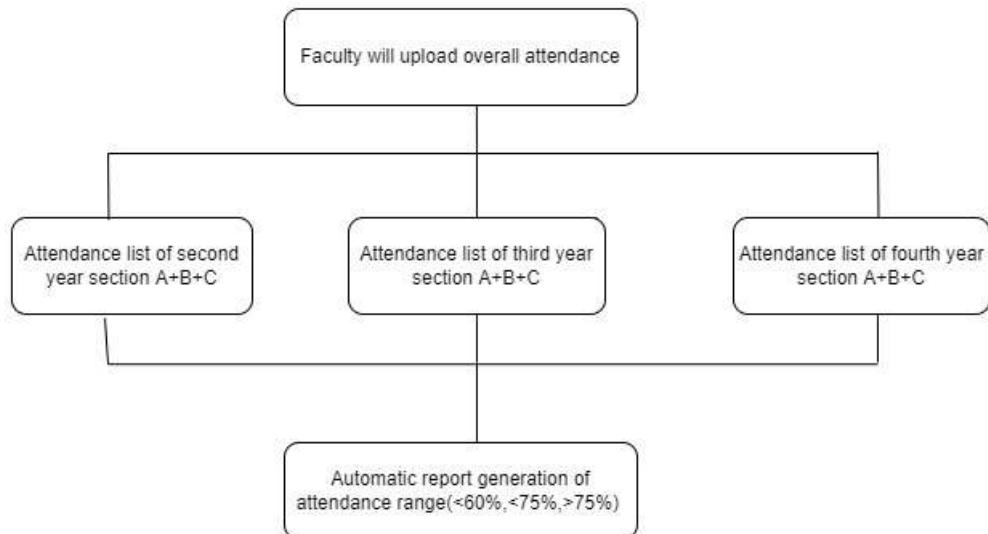
**b. Uploading of Time table on portal:**



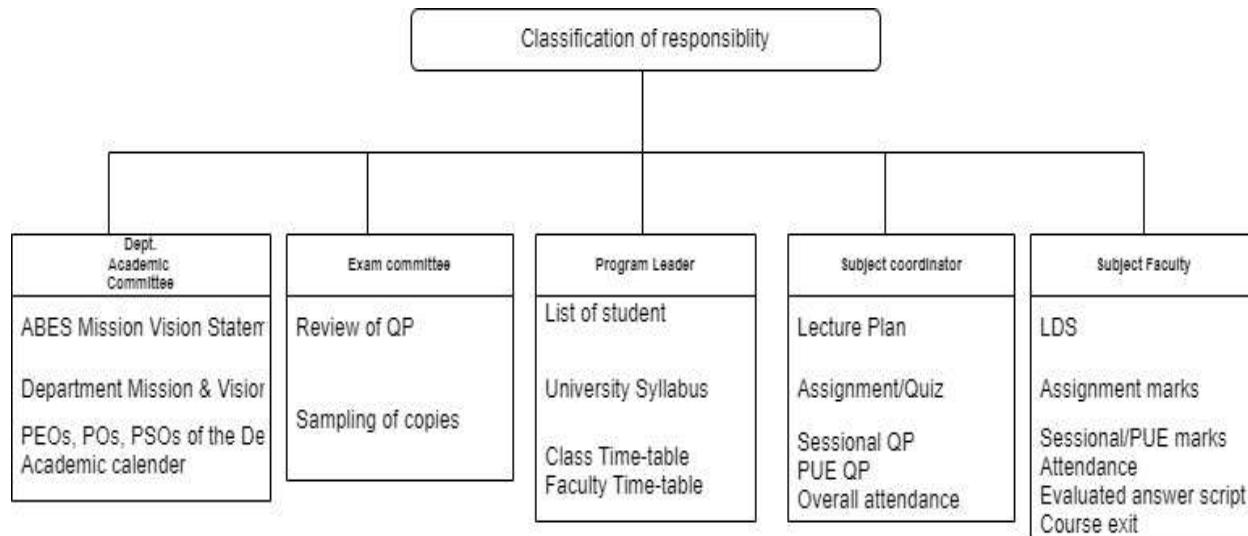
**c. Uploading of Sessional Marks on portal:**



**d. Uploading of Attendance on portal:**



**e. Classification of responsibility seeking approval for the contents of course files:**



**7. Smooth ride for Faculty members from Course File Automation Portal: Outcome**

1. **Less paper Consumption:** Extra consumption of paper will be controlled.
2. **Data Loss Avoidance:** Faculty data will always be saved on the portal for accessibility
3. **Time saving:** No need to create course file from scratch always. Already created course file content can be reused.
4. **No need for data formatting.** Course file will be downloaded in all the formats like pdf, .xls etc.
5. **In-house project of ABESEC:** Students are working on the project. Therefore, it will be beneficial for students as well as for faculties.
6. **Scalability:** More features can be added as per demand.
7. **Interactive and User friendly.**
8. **Anywhere and anytime accessibility.**

**8. Demonstration Video of Course File Automation portal: [Demonstration Video Course File Automation](#)**

कार्यालय      जिला      समाज      कल्याण      अधिकारी,      गाजियाबाद।  
पत्रांक 733 /आई0जी0आर0एस0/2021-22      २७ दिनांक 104/2022  
शिकायत सन्दर्भ संख्या— 92214000006926

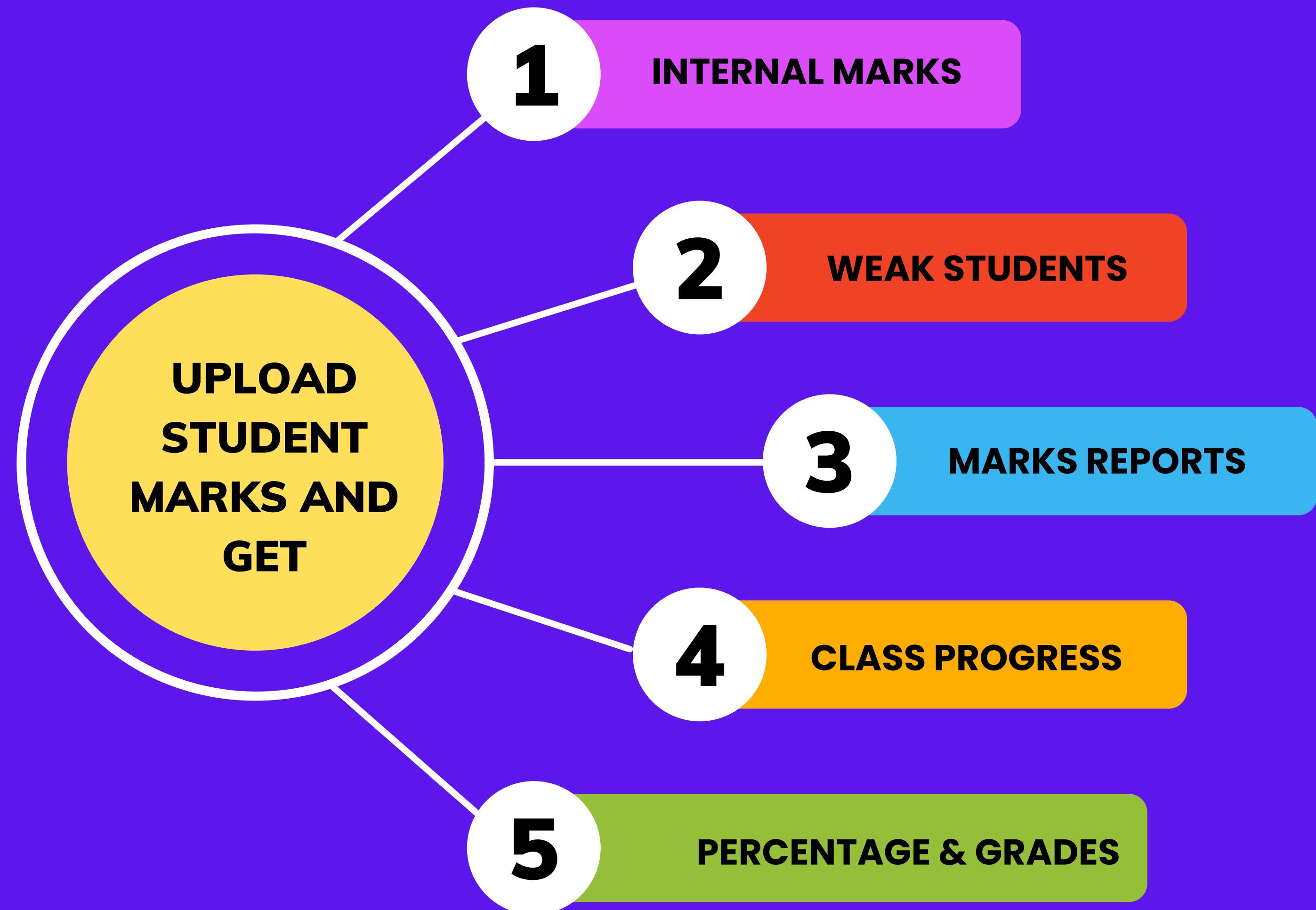
जांच अधिकारी का नाम	संजीव कुमार
जांच अधिकारी का पदनाम	प्रधान सहायक
फोन नं०	01202985875
शिकायत कर्ता का नाम व पता	राम गोयल
शिकायतकर्ता का मोबाइल नं०	—
शिकायत का स्थल	गाजियाबाद
सुनवाई निस्तारण का दिनांक	25 अप्रैल, 2022
अधिकारी की आख्या	छात्रवृत्ति बेबसाइट पर वर्ष 2021-22 की छात्रवृत्ति/शुल्क प्रतिपूर्ति के अन्तर्गत छात्र का आवेदन पत्र जनपद स्तर पर से बैरीफाई किया गया है। मुख्यालय लखनऊ स्तर से योजनात्तर्गत पर्याप्त धनावंटन उपलब्ध न होने के कारण नियमानुसार अस्वीकृत कर दिया गया है, जिसके कारण छात्रवृत्ति धनराशि देय नहीं है।
	कृ० प्रकरण निष्केपित करने का कष्ट करें।

जिला समाज कल्याण अधिकारी  
गाजियाबाद

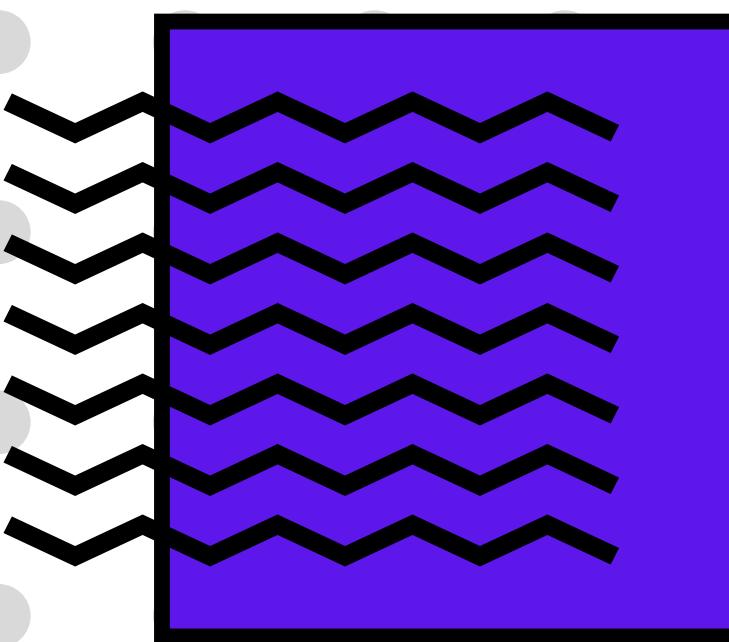
प्रतिलिपि—

- 1—जिलाधिकारी महोदय, गाजियाबाद को सादर सूचनार्थ प्रेषित।
- 2—सम्बन्धित शिकायतकर्ता ।

जिला समाज कल्याण अधिकारी  
गाजियाबाद



**ABES ENGINEERING COLLEGE**



# **COURSE FILE PORTAL**

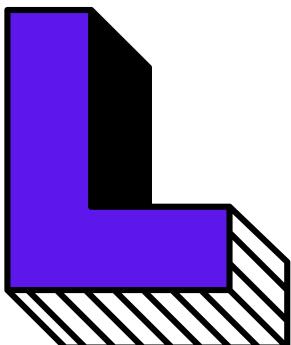


Entrepreneurship Cell, CSE Department, ABESEC



# **WHAT IS A COURSE FILE ?**

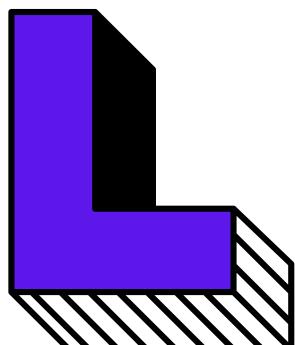
A course file is essentially a record that contains all types of relevant facts about the batch, assessment, and overall outcomes of the course in an academic setup. A course file provides you with a leg up on the competition when it comes to the course's overall curriculum and administration. A course file will provide you with all of the information you require to make an informed selection like COs, CO and PO mapping, Target of COs and attainment, Lecture Plan, Lecture delivery schedule, Assignments, Sessional Papers and End Term papers. The data you have about the course and students are used to determine delivery mechanisms, change or expand the curriculum, provide more learning materials, use different teaching styles, and so on. Faculty members are normally required to retain a course file at all universities/colleges.





## PROBLEM STATEMENT

Maintaining a hard copy of one, however, is a very difficult task as there are a lot of documents to include, a lot of data to analyze, and a lot of time to put in. and also a lot of paper gets waste in making and maintenance of physical course file, and the content of one course file can not be reused for others.





# WHY COURSE FILE PORTAL

**01**

## PAPER WASTAGE

When the course file goes online, it will reduce the paper wastage .

**02**

## UNSTRUCTURED DATA

All data will be available at one place and in an structured way.

**03**

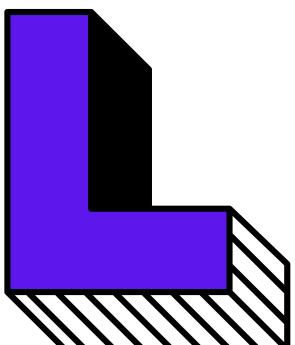
## MANUAL TASKS

The manual tasks done by the faculties will be done automatically.

**04**

## MAINTAINANCE

It will become easy to manage, access and share all course files.





Hi, I am a faculty and  
I need a course file  
for every semester.

I prepare it  
manually and  
it takes lot of  
pages.



Is there any  
solution for  
this.



Sir We can solve  
your problem by  
making a online  
portal.



Oh, can you tell  
me how a portal  
can solve my  
problem.



This portal will  
automate all the work  
of course file and will  
make it easy.

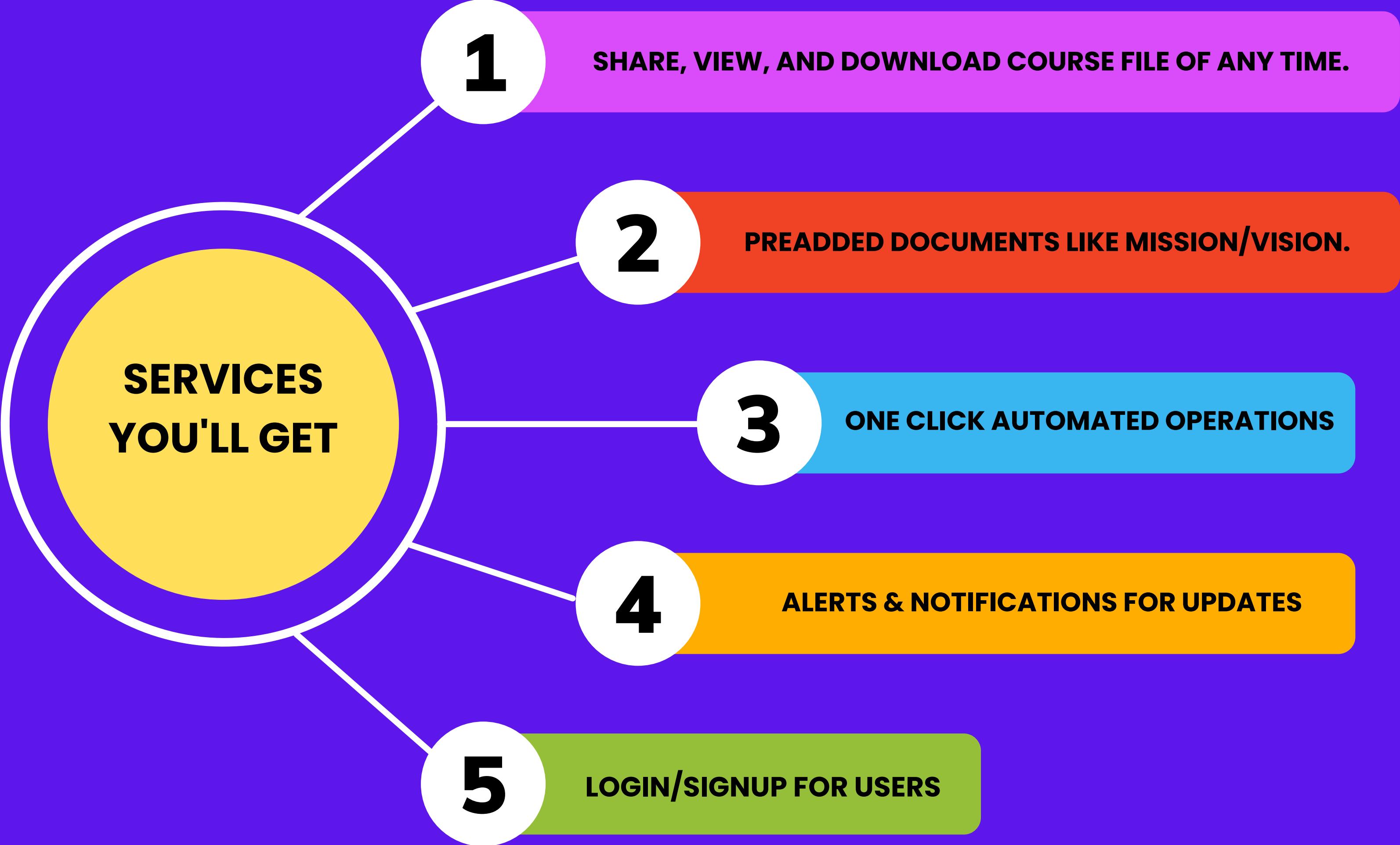
Let us explain more



# **What/How of Portal?**

The portal is smart.





## **SERVICES YOU'LL GET**

**1**

SHARE, VIEW, AND DOWNLOAD COURSE FILE OF ANY TIME.

**2**

PREADDED DOCUMENTS LIKE MISSION/VISION.

**3**

ONE CLICK AUTOMATED OPERATIONS

**4**

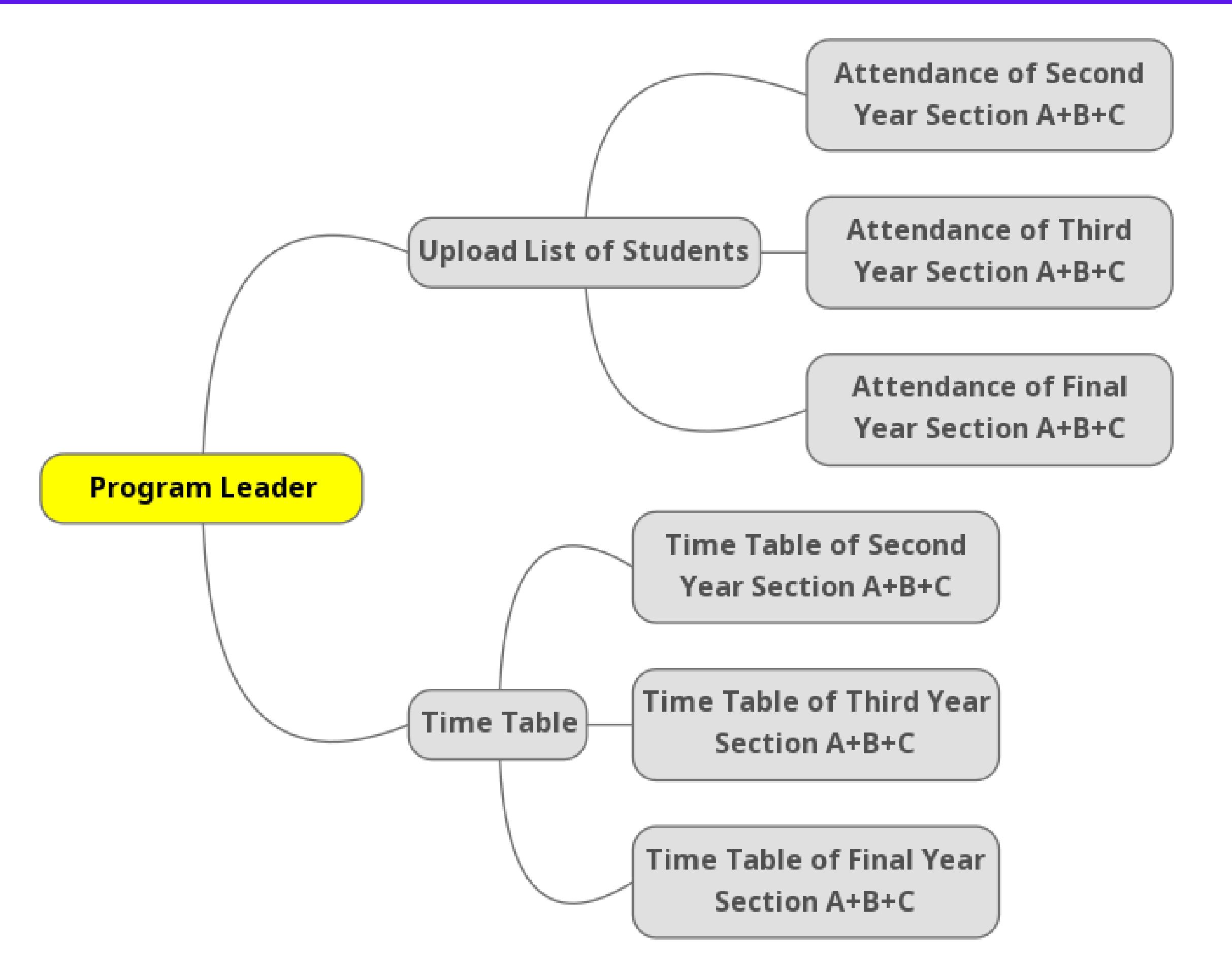
ALERTS & NOTIFICATIONS FOR UPDATES

**5**

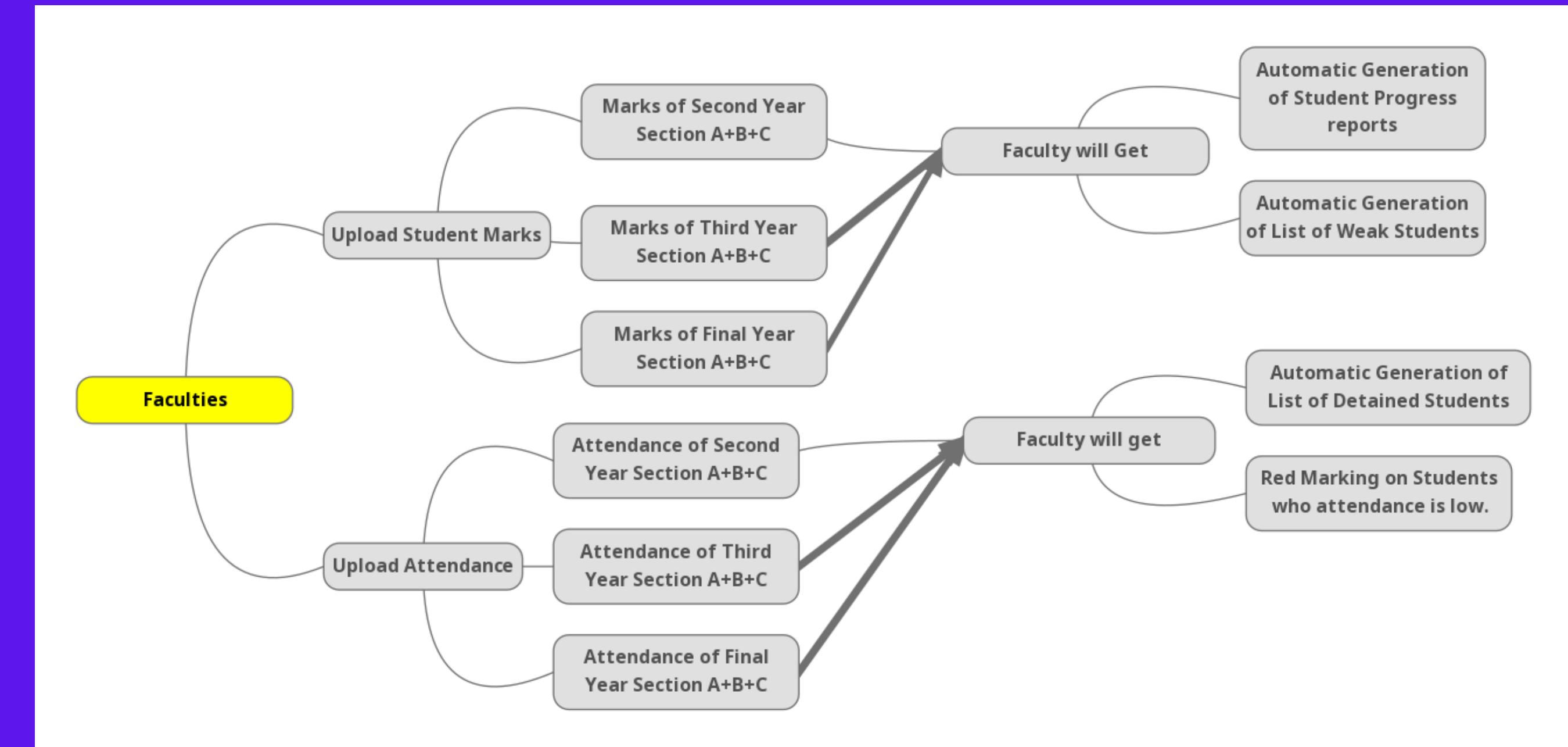
LOGIN/SIGNUP FOR USERS

# DATA FLOW IN PORTAL

## (Make Templates)



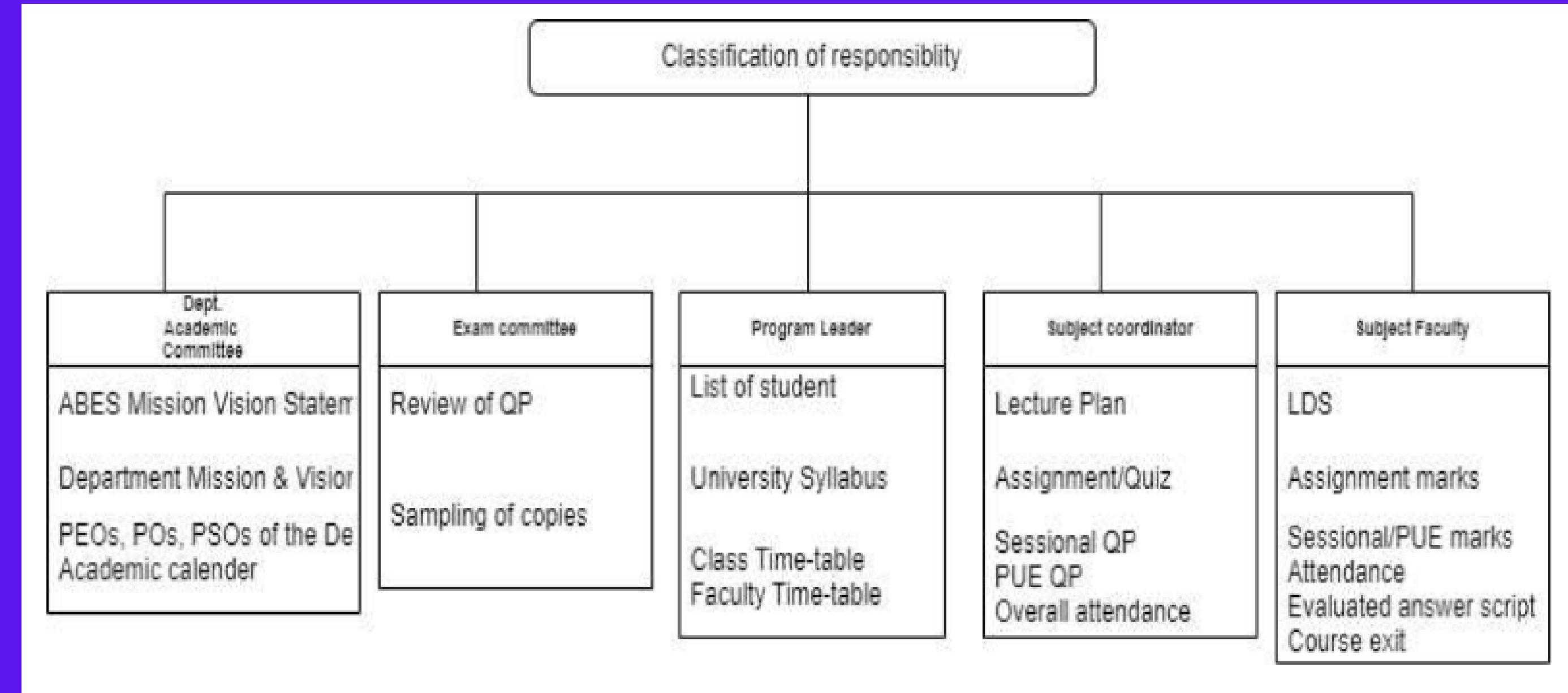
# DATAFLOW IN PORTAL (Add Data)



# DATAFLOW

## IN PORTAL

### (Uploading of Data)



# WorkFlow

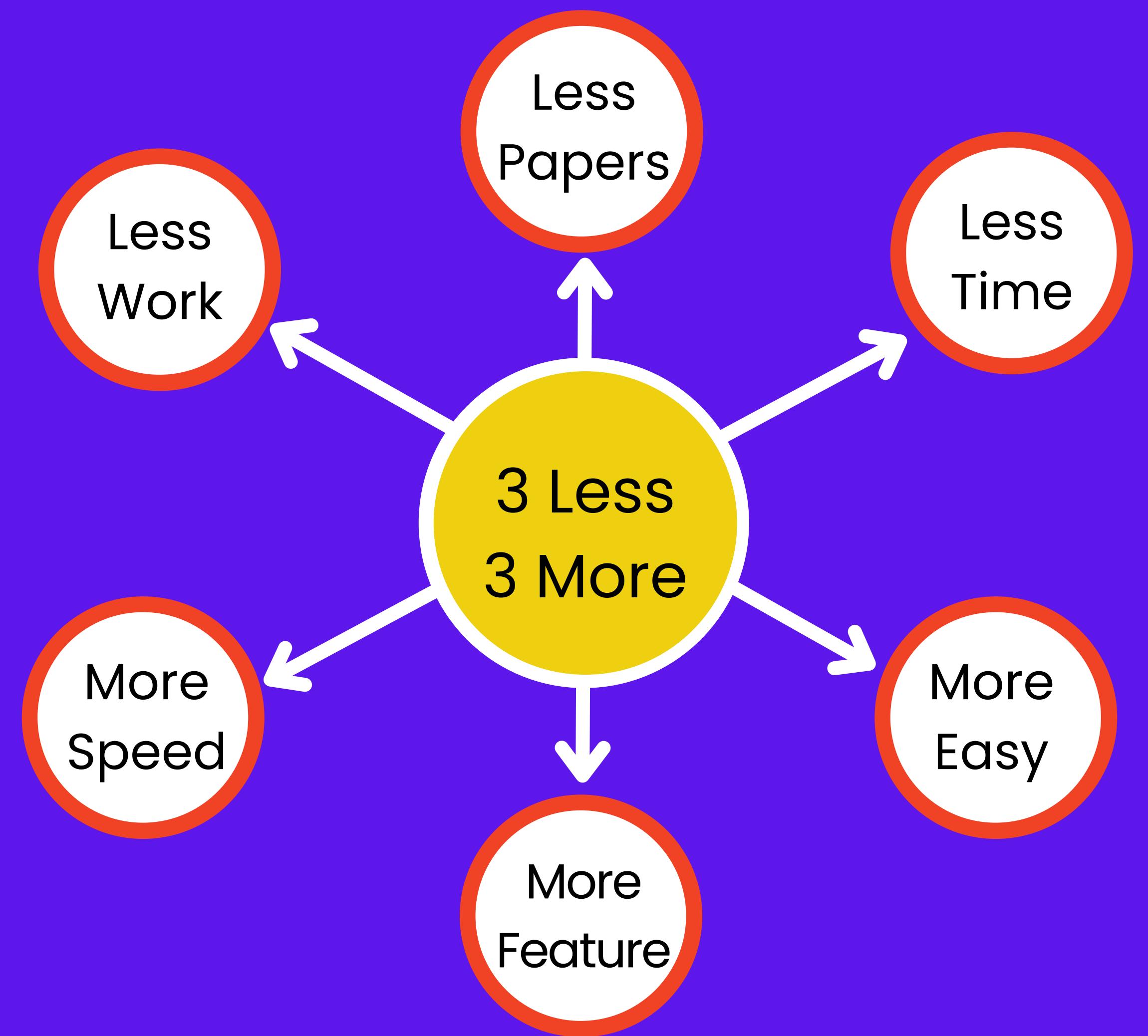
Login into Account

Choose the Batch

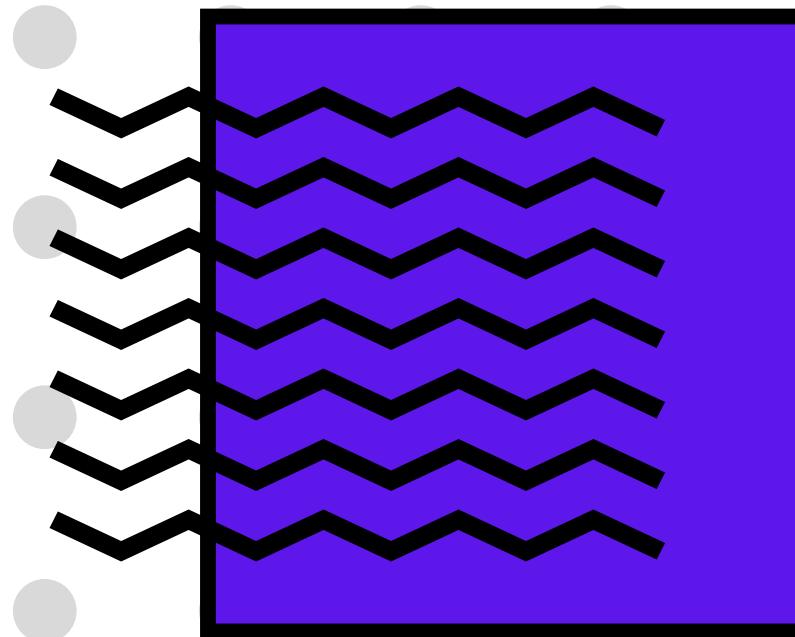
Select Default Files

Add the Required Data

The File is Created



**ABES ENGINEERING COLLEGE**



**THANKS FOR  
BEING HERE**



**UPLOAD  
STUDENT  
ATTENDANCE  
AND GET**

The diagram illustrates a three-step process for managing student attendance. It begins with a large yellow circle containing the text "UPLOAD STUDENT ATTENDANCE AND GET". Three white lines extend from the bottom of this circle to three numbered steps: "1 DETAINED LIST" (purple bar), "2 HIGHLIGHT ON LESS ATTENDANCE" (orange bar), and "3 ATTENDANCE REPORTS" (blue bar). Each step is enclosed in a white circle with a black number.

**DETAINED LIST**

**HIGHLIGHT ON LESS ATTENDANCE**

**ATTENDANCE REPORTS**

**1**

**DETAINED LIST**

**2**

**HIGHLIGHT ON LESS ATTENDANCE**

**3**

**ATTENDANCE REPORTS**

**AIM:** To write a C program to implement the FCFS scheduling algorithm.

**Theory :** Given n processes with their burst times, the task is to find average waiting time and average turnaround time using FCFS scheduling algorithm.

First in, first out (FIFO), also known as first come, first served (FCFS), is the simplest scheduling algorithm. FIFO simply queues processes in the order that they arrive in the ready queue.

In this, the process that comes first will be executed first and the next process starts only after the previous gets fully executed.

Here we are considering that arrival time for all processes is 0.

### What is Waiting Time and Turnaround Time?

1. Turnaround Time is the time interval between the submission of a process and its completion.

Turnaround Time = completion of a process – submission of a process

2. Waiting Time is the difference between turnaround time and burst time

Waiting Time = turnaround time – burst time

we have assumed arrival times as 0, so turn around and completion times are same

## FCFS (Example)

Process	Duration	Oder	Arrival Time
P1	24	1	0
P2	3	2	0
P3	4	3	0

### Gantt Chart :



P1 waiting time : 0

P2 waiting time : 24

P3 waiting time : 27

The Average waiting time :

$$(0+24+27)/3 = 17$$

**Code:-**

```
#include<iostream>
using namespace std;
int main(){
    int i,n;
    cout<<"Enter total Number of Processes: ";
    cin>>n;
    int bt[n],wt[n],ct[n];
    for(i=0;i<n;i++){
        cout<<"Enter Burst Time for Process P"<<i<<": ";
        cin>>bt[i]; }
    wt[0]=0;
    for(i=1;i<=n;i++){
        wt[i]=wt[i-1]+bt[i-1]; }
    for(i=0;i<n;i++){
        ct[i]=wt[i]+bt[i];
    }
    cout<<"Process\t Burst Time \t Waiting Time \t Completion Time \n";
    for(i=0;i<n;i++){
        cout<<"P"<<i<<"\t";
        cout<<bt[i]<<"\t\t"<<wt[i]<<"\t\t"<<ct[i]<<"\t";
        cout<<"\n"; }
    }
}
```

**Output:-**

```
Enter total Number of Processes: 3
Enter Burst Time for Process P0: 23
Enter Burst Time for Process P1: 3
Enter Burst Time for Process P2: 4
Process    Burst Time      Waiting Time      Completion Time
P0          23              0                  23
P1          3                23                 26
P2          4                26                 30
```

**Code - (Different Arrival Time)**

```
#include<iostream>
using namespace std;
int main(){
    int i,n,j;
    cout<<"Enter total Number of Processes: ";
    cin>>n;
    int bt[n],wt[n],ct[n],art[n];
    for(i=0;i<n;i++){
        cout<<"Enter Burst Time for Process P"<<i<<": ";
        cin>>bt[i];
        cout<<"Enter Arrival Time for Process P"<<i<<": ";
        cin>>art[i];
        wt[0]=0;
        for(i=1;i<=n;i++){
            int sum=0;
            for(j=0;j<i;j++){
                sum+=bt[j];
            }
            wt[i]=sum-art[i];
            ct[i]=wt[i]+bt[i];
        }
        cout<<"Process\t Burst Time \t Arrival Time \t Waiting Time \t Execution Time \n";
        for(i=0;i<n;i++){
            cout<<"P"<<i<<"\t";
            cout<<bt[i]<<"\t\t"<<art[i]<<"\t\t"<<wt[i]<<"\t\t"<<ct[i]<<"\t";
            cout<<"\n"; } }
```

**Output :-**

```
Enter total Number of Processes: 3
Enter Burst Time for Process P0: 23
Enter Arrival Time for Process P0: 0
Enter Burst Time for Process P1: 3
Enter Arrival Time for Process P1: 2
Enter Burst Time for Process P2: 4
Enter Arrival Time for Process P2: 3
Process  Burst Time      Arrival Time      Waiting Time      Execution Time
P0      23              0                  0                  23
P1      3               2                  21                 24
P2      4               3                  23                 27
```

**Aim - Study of hardware & Software requirements of various Operating Systems****Theory -****What is an Operating System?**

An operating system (OS) is system software that manages computer hardware, software resources, and provides common services for computer programs. For hardware functions such as input and output and memory allocation, the operating system acts as an intermediary between programs and the computer hardware, although the application code is usually executed directly by the hardware and frequently makes system calls to an OS function or is interrupted by it.

Parameters	UNIX	LINUX	Windows XP	Windows 7	Windows 10
<b>RAM</b>	256MB, minimum.	1 GB or greater	64 MB of RAM	1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit)	1 gigabyte (GB) for 32-bit or 2 GB for 64-bit.
<b>Processor</b>	HP 9000/800	64-bit Opteron, EM64T	233 MHz processor	1 GHz or faster 32-bit or 64-bit processor	2 gigahertz (GHz) or faster processor or SoC.
<b>Disk Space</b>	Minimum of 300MB	500 MB free space	1.5 gb of free hard drive space.	16 GB available hard disk space (32-bit) or 20 GB (64-bit)	16 GB for 32-bit OS or 20 GB for 64-bit OS.
<b>Drivers/Hardware</b>	ODBC Driver	None	SVGA-capable video card.	DirectX 9 graphics device with WDDM 1.0 or higher driver	DirectX 9 or later with WDDM 1.0 driver

**Result - Studied and Understood Hardware and Software requirements of various operating systems.**



