

# **Student Option Programme**

**User Manual for** 

**SOP Version 2.2** 

Council and Secondary Section 2

Curriculum Development Institute

Education Bureau

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### **About this Document**

This manual describes the features of the Student Option Programme (SOP), including screens and reports. Target audiences of this document are SOP users.

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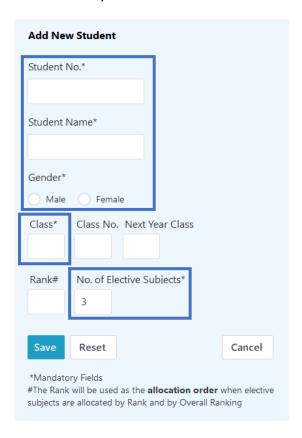
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### 1. General Information of SOP

## 1.1 Mandatory Field

All mandatory fields are marked with an asterisk (\*).



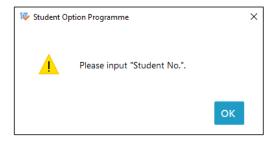
### 1.2 System Message

After clicking the action / function button (e.g., "Save", "Generate", etc.), one of the following three types of system messages will be prompted to users if applicable:

#### Warning message:

Warning messages will be prompted to users if discrepancy is found after the SOP has validated all the mandatory fields and their data format.

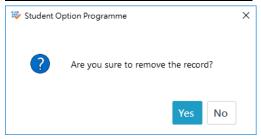
#### Example of warning message box



#### Confirmation message:

Confirmation messages will be prompted when the SOP asks for confirmation in some cases.

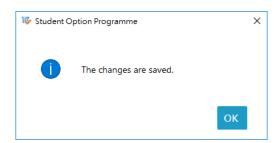
#### Example of confirmation message box



#### • Information message:

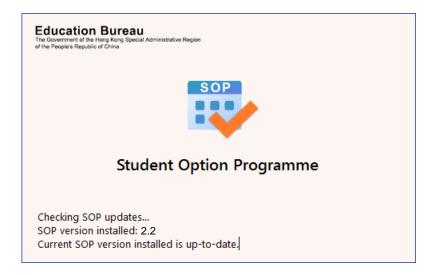
Information messages will be prompted after the SOP has processed an action.

#### Example of information message box



### 1.3 System Version Upgrade

When the SOP is launching and the PC is connected to the Internet, the programme version of the SOP and data file template will be checked for upgrade automatically. If a newer version is found, the SOP will upgrade the programme version upon users' confirmation and update the data file template automatically.

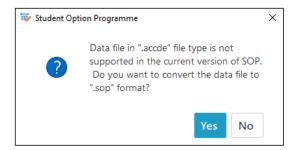


#### 1.4 Data File Conversion

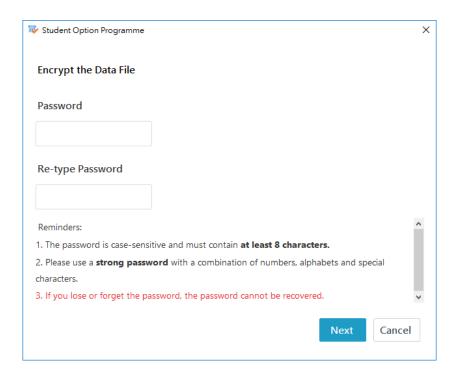
### 1.4.1 Convert from ".accde" to ".sop"

When an ".accde" data file of a previous version of SOP is opened, SOP will convert the data structure and the data file type to ".sop" upon users' confirmation. If users refuse to perform data conversion, the data file in ".accde" file format cannot be opened.

When users open an ".accde" data file, the SOP will display the data file conversion in a confirmation box.



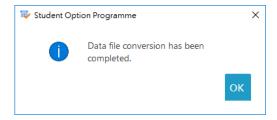
If users click the "Yes" button, a self-defined password for the new ".sop" file will be required.



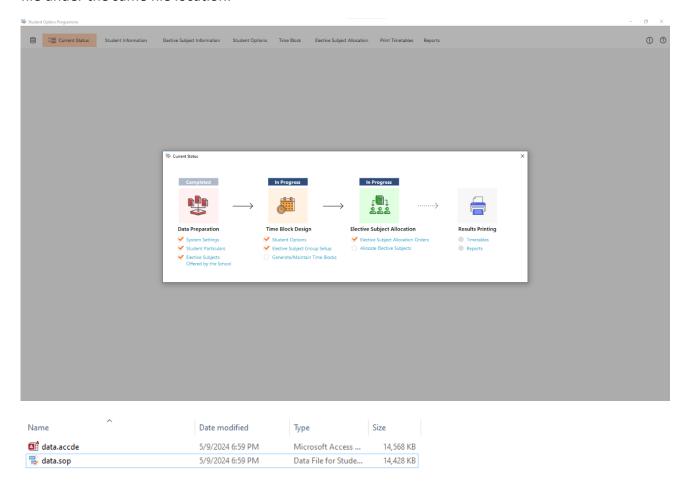
After clicking the "Next" button, the SOP will start converting the file.



After the conversion is completed, a prompt box will be displayed.



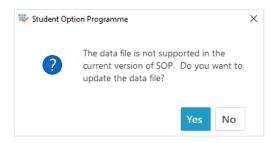
The converted ".sop" file will be opened automatically and saved as the same name as the ".accde" file under the same file location.



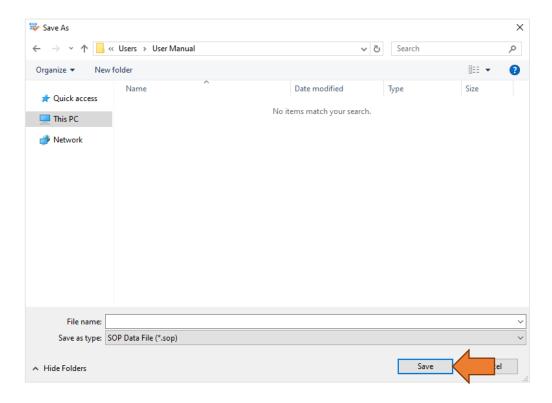
### 1.4.2 Convert ".sop" from previous version to latest version.

When an ".sop" data file of a previous version of SOP which is not supported in the current version is opened, SOP will convert the data structure upon users' confirmation. If users refuse to perform data file update, the data file cannot be opened.

When users open an ".sop" data file that is not supported by the current version of SOP, the SOP will display the data file update in a confirmation box.



If users click the "Yes" button, a folder destination and new file name for the new ".sop" file will be required.



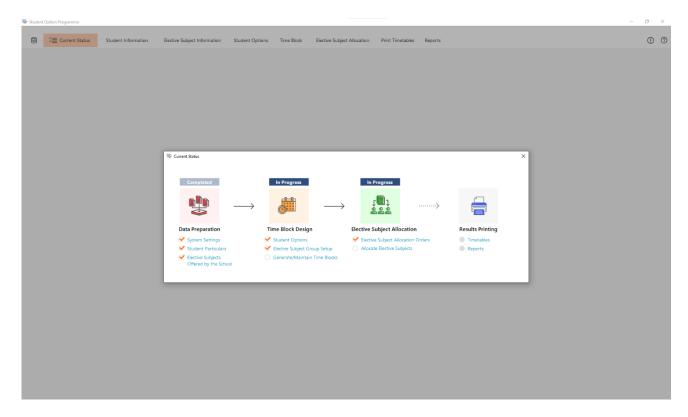
After clicking the "Save" button, the SOP will start converting the file.

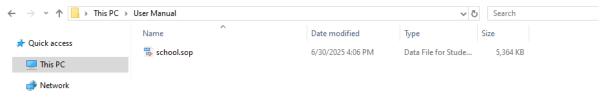


After the conversion is completed, a prompt box will be displayed.



The converted ".sop" file will be opened automatically, encrypted by the original password and saved as the defined name in the defined location.

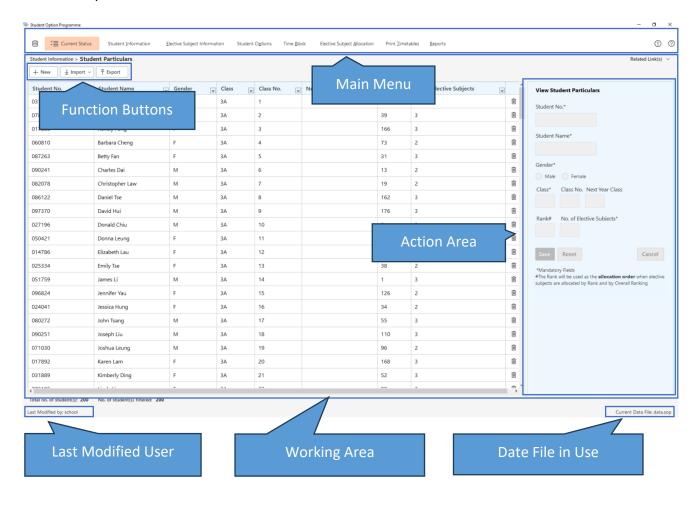




#### 1.5 Main Window

The main window of the SOP consists of 4 sections:

- Main Menu: a full menu to access each page.
- Working Area: The working space of the SOP. Function Buttons and Action Area are the
  components in the working space. The function buttons are placed below the page heading,
  allowing users to execute different functions on the pages, such as create New, Import and
  Export data. The Action Area is where users can input values for the selected entry.
- Last Modified User: a section to display the username of the last modified user.
- **Data File in Use**: a section showing the currently opened data file. Mouse over to show the file path.



#### 1.6 Current Status

The "Current Status" screen will be displayed when users open an ".sop" file or click the "Current Status" button in the main menu.



Below shows the "Current Status" screen.



Users can click the page name in the "Current Status" screen to be directed to the page. Users can also check the status of each page. Two types of symbols will be displayed in front of the page name to indicate the status.

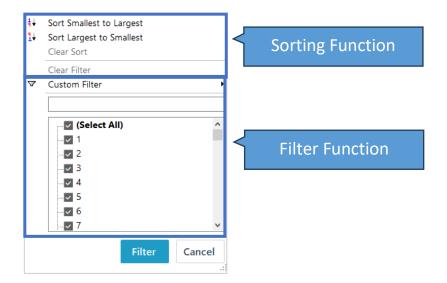
- 1. will be shown in front of **finished items**
- 2. will be shown in front of **unfinished items**



For the definition of "finish", please refer to Appendix I <u>Definition of Finish in Current Status</u>.

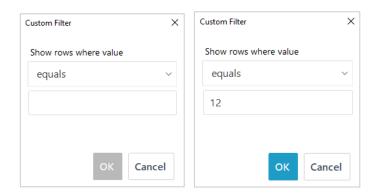
### 1.7 Sorting & Filtering

The SOP provides an Excel-like sorting and filtering function for each table column. Users can click the button on the column title to display the sorting and filtering prompt box.



After selecting any filter items, users can click "Filter" button to perform the filtering.

Custom Filter function is also provided for users to do advanced filtering.



Click "OK" button to filter the column value.

### 1.8 Related Links

At the top right corner of each page, there is a "Related Links" dropdown button. This is a quick menu of shortcuts for users to access the related pages.

For example, in the "Student Particulars" page, the related links include the "Student Academic Results" page and "Input Student Options" page.



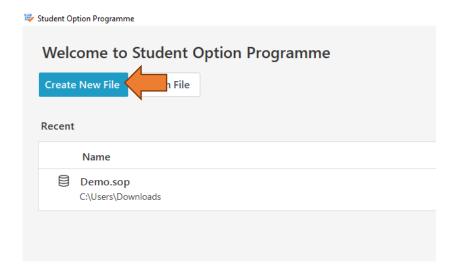
### 2. File Operation

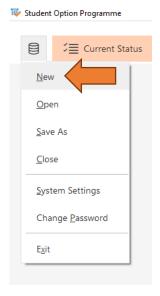
This section shows all the data file related functions. They are:

- creating a new data file;
- opening an existing data file;
- saving the opened data file as a copied data file;
- closing the opened data file;
- change the system settings of the opened data file;
- changing the password of the opened data file; and
- exiting the SOP.

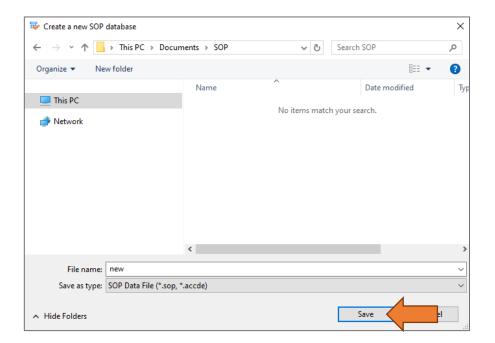
#### 2.1 **New**

Click "Create New File" button in the "Welcome" page or File Operation Menu (  $\bigcirc$   $\rightarrow$  New) to create a new ".sop" file.

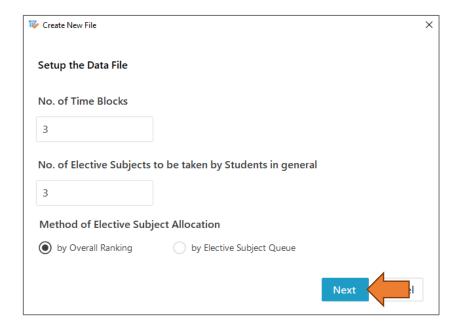




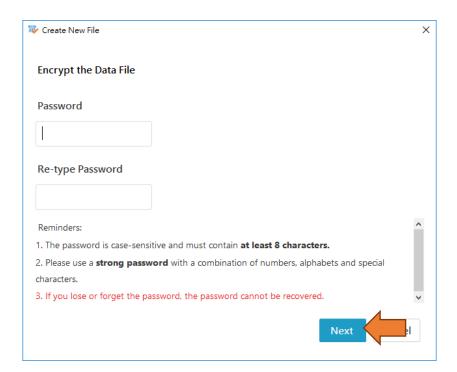
Select the destination folder, enter the filename of the new ".sop" file, and click "Save" button.



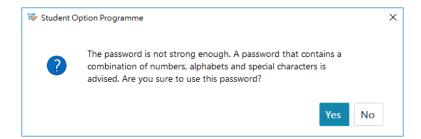
Input the system settings and click "Next" button.



Setup the self-defined password of the data file and click "Next" button.



If the entered password is not strong enough, the SOP will prompt a message for confirmation.



The system opens the newly created date file. The filename is shown at the bottom right corner.

Last Modified by: school

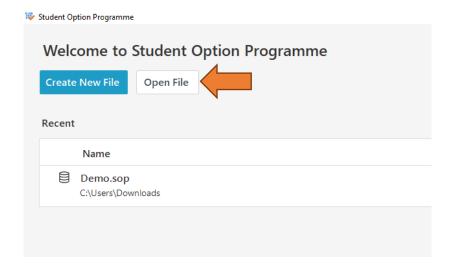
Current Data File: data.sop

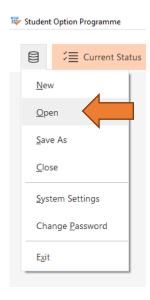
Mouse over the filename to display the file path.



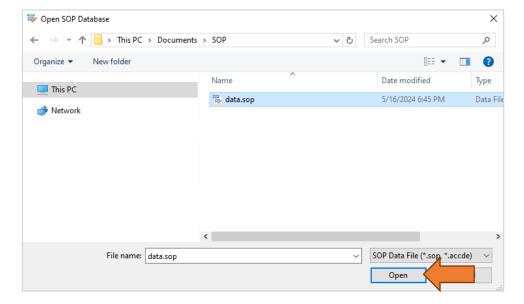
### 2.2 Open

Click "Open File" button in the "Welcome" page, or File Operation Menu (  $\Longrightarrow$  Open) to open an existing data file.





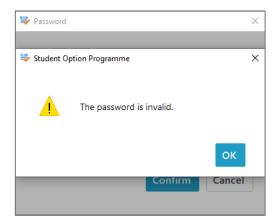
Choose a data file to open, and then click "Open" button.



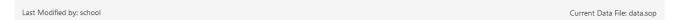
Enter password of the data file and click "Confirm" button.



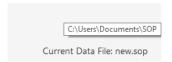
If the entered password is incorrect, a warning message will be displayed. Users have to open the data file and enter the password again.



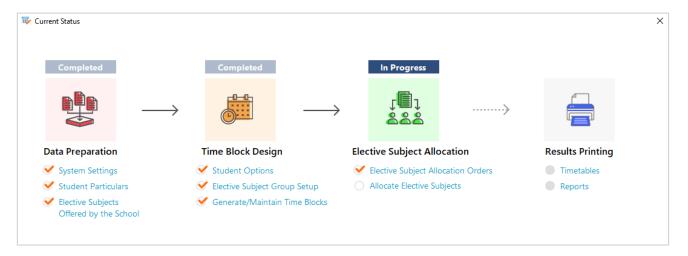
If the entered password is correct, the system will open the data file. The filename will be shown at the bottom right corner.



Mouse over the filename to display the file path.



The "Current Status" screen will be displayed after the data file is opened.

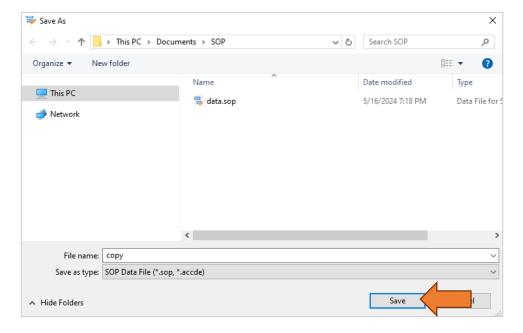


#### 2.3 Save As

Click File Operation Menu (  $\blacksquare$   $\rightarrow$  Save As) to copy the opened data file.



Select the destination folder, enter the name of the copied data file, and click "Save" button.



The system will prompt the following message box when the process is finished.

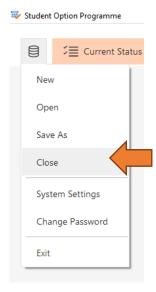


The original data file will be closed and the copied data file will be opened. The filename will be shown at the bottom right corner.

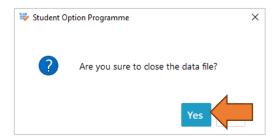


### 2.4 Close

Click File Operation Menu (  $\boxminus$   $\rightarrow$  Close) to close the opened data file.



Click "Yes" button to close the data file.

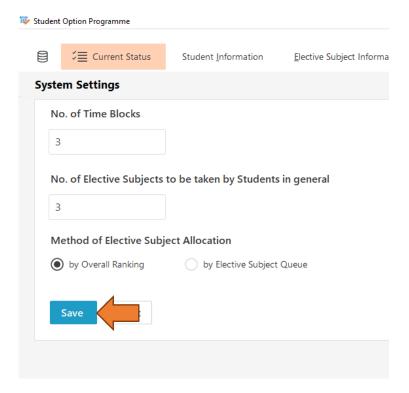


### 2.5 System Settings

Click File Operation Menu (  $\bigcirc$   $\rightarrow$  System Settings) to change the system settings of the opened data file.

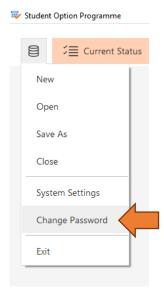


Update the settings, and click "Save" button to apply the changes, or click "Reset" button to revert the changes made.

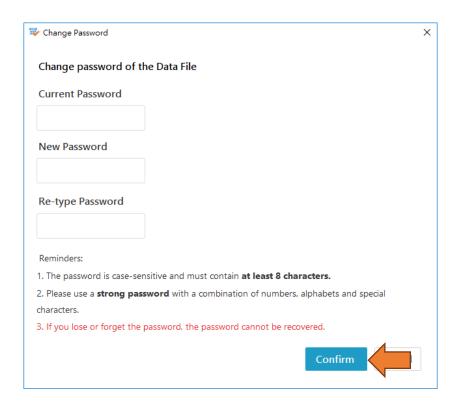


### 2.6 Change Password

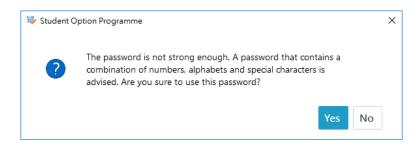
Click File Operation Menu ( 
☐ → Change Password) to change the password of the data file.



Enter "Current Password", "New Password" and "Re-type Password", and click "Confirm" button.

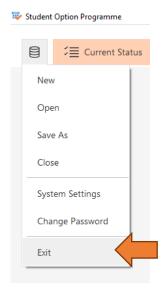


If the new password is not strong enough, the SOP will prompt a message for confirmation.



### **2.7 Exit**

Click File Operation Menu (  $\begin{cases} \rightarrow \end{cases}$  Exit) to exit the SOP.



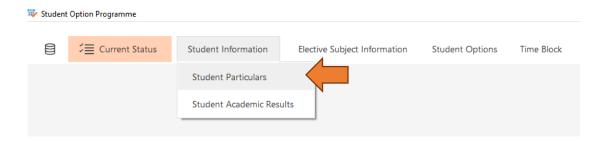
### Click "Yes" button to exit the SOP.



### 3. Student Information

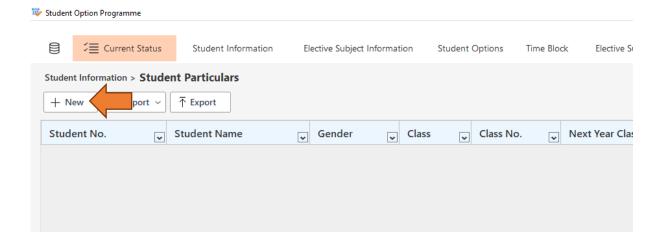
### 3.1 Student Particulars

Click Main Menu (Student Information  $\rightarrow$  Student Particulars) to browse the student particulars of S3 students.

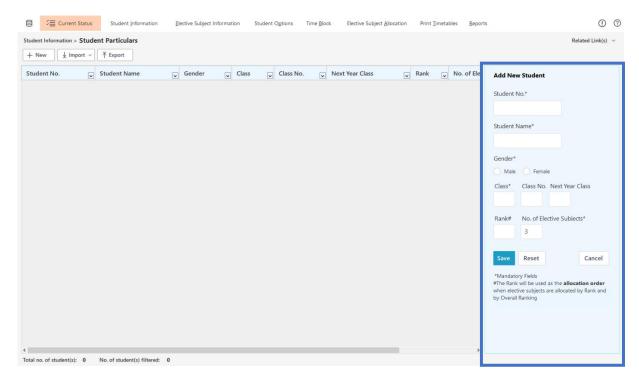


#### 3.1.1 Add a New Student

Click "New" button to add a new student to the student list.



Input the particulars of the new student in the Action Area, and click "Save" button. Please note that "Student No." cannot be edited after saving.



#### A new record is added.



The new record will be displayed in the student list.

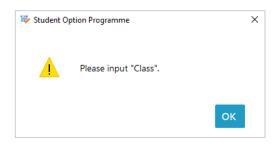


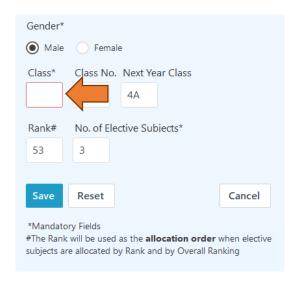


To input the particulars of all S3 students in one go, please refer to 3.1.4 <u>Import Student</u> <u>Particulars</u>.

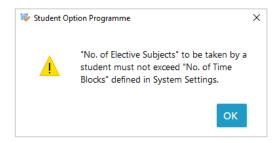
#### Validation:

1. If any mandatory field is not filled in, the system will prompt a warning message and highlight the field in red.



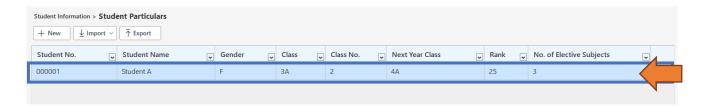


2. If the "No. of Elective Subjects" to be taken by a student is greater than the "No. of Time Blocks" defined in "System Settings", the system will prompt a warning message and the record will not be saved.



#### 3.1.2 Update Student Particulars

Double click a student record in the table to update the particulars of a student.



Update the particulars of the student in the Action Area, and click "Save" button.



The selected record is updated.

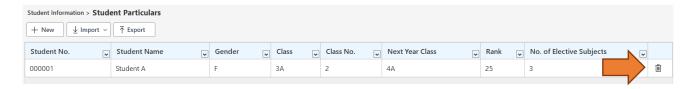




To update the particulars of all S3 students in one go, please refer to 3.1.4 <u>Import Student</u> <u>Particulars</u>.

#### 3.1.3 Delete a Student

Click the delete icon ( iii ) to delete a student from the student list.



Click "Yes" button to confirm the deletion.

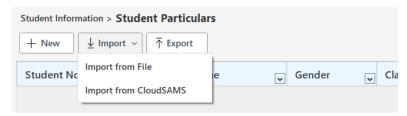


The selected record is deleted.



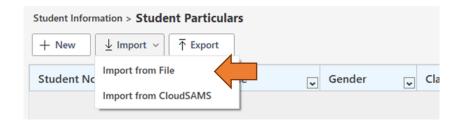
### 3.1.4 Import Student Particulars

Users can import data via Excel or CSV file. Click "Import" button to choose "Import from File" or "Import from CloudSAMS".

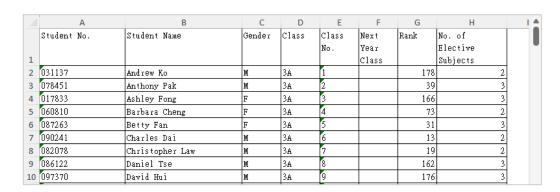


### 3.1.4.1 Import from File

Click "Import from File" button.



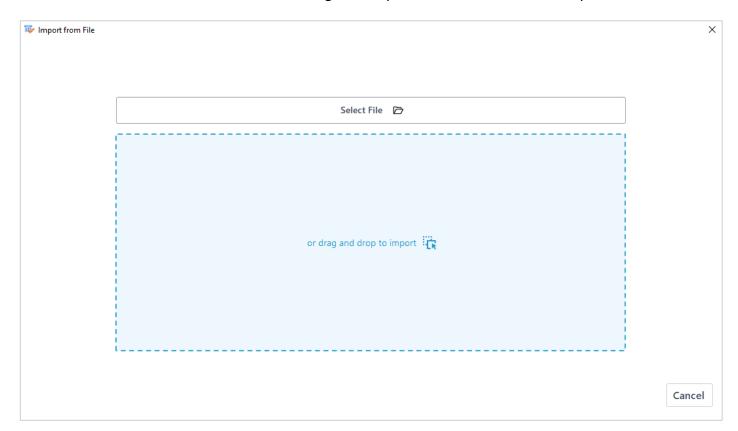
Below shows a sample Excel file.



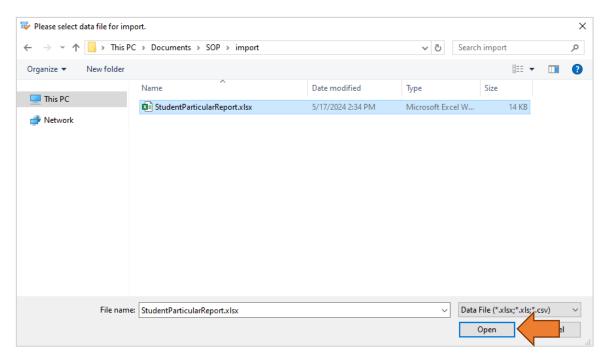


To obtain file template for import, please refer to 3.1.5 Export Student Particulars.

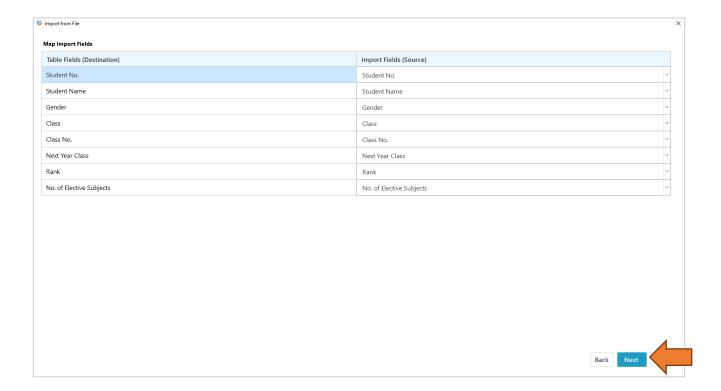
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



Select the file for import and click "Open" button.



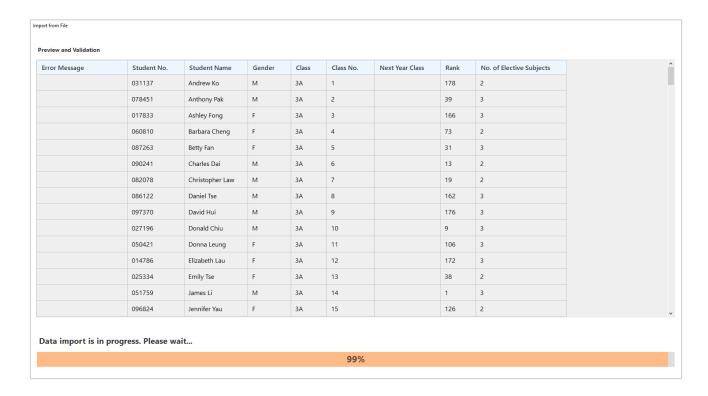
The system will map the import fields automatically based on the column titles in the import file. Users can also select the import fields manually. Click "Next" button when all the fields are mapped to start the data validation.



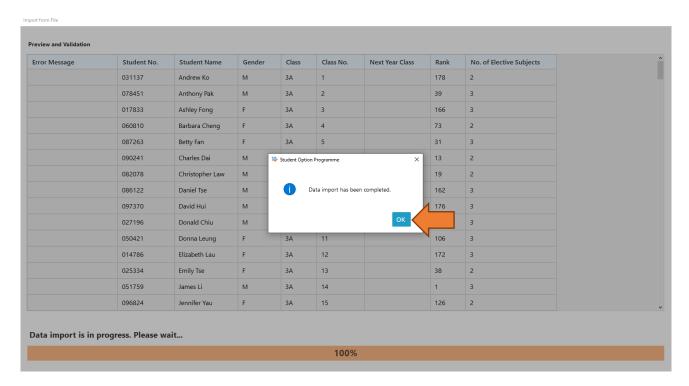
If the data is invalid, warning message(s) will be displayed under "Error Message" column. If no error is encountered, click "Import" button.



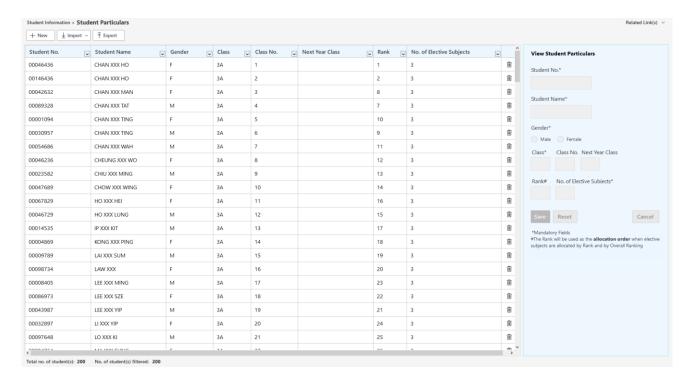
A progress bar will be displayed to show the import progress.



Data import is completed. Click "OK" button.



The data is imported and displayed in the student list.



After completing the import of student particulars:

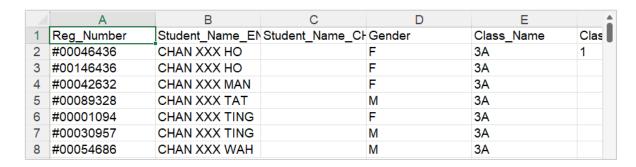
- student information in the student list will be replaced by the data in the import file

# 3.1.4.2 Import from CloudSAMS

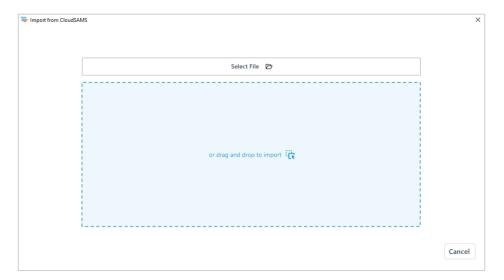
Click "Import from CloudSAMS" button.



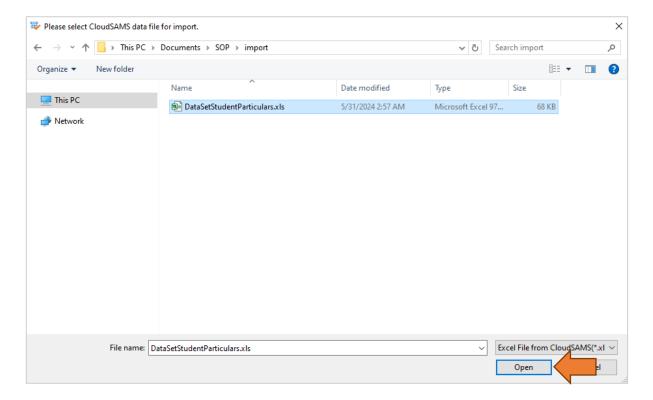
Below shows a sample Excel file exported from CloudSAMS.



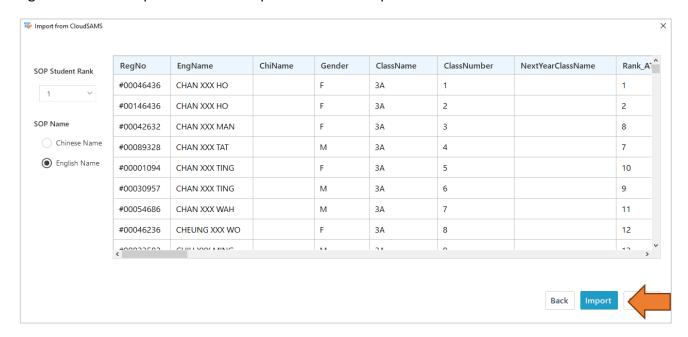
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



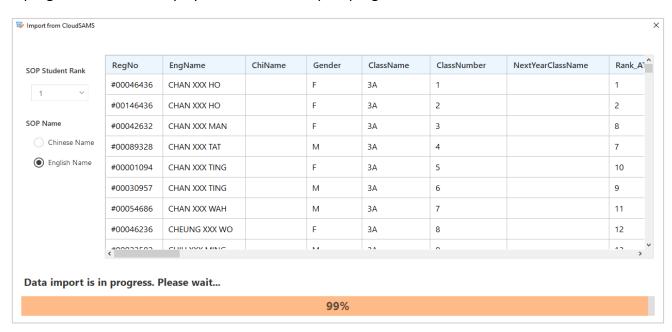
Select the file for import and click "Open" button.



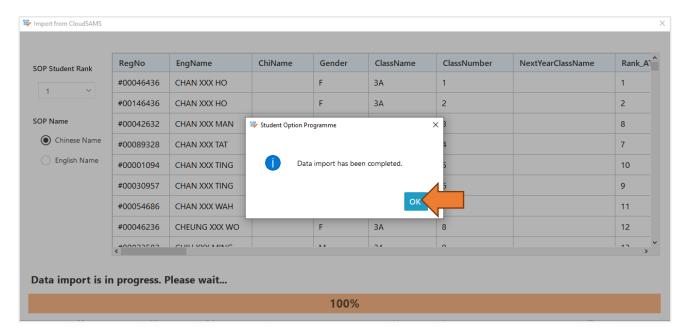
Select "SOP Select Rank" and "SOP Name". The data to be imported will be shown in the table on the right-hand side for preview. Click "Import" button to import the data.



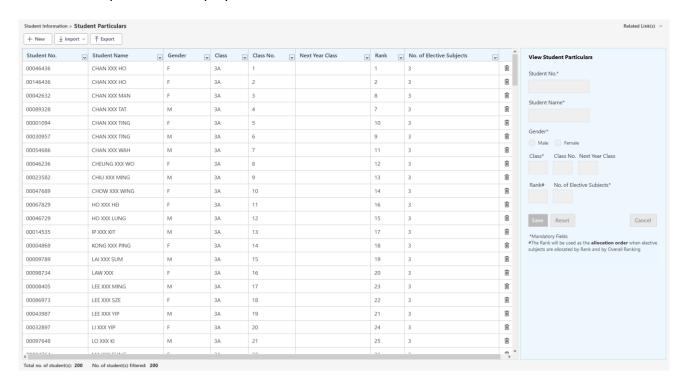
A progress bar will be displayed to show the import progress.



Click "OK" button to close the completion prompt box.



The data is imported and displayed in the student list.

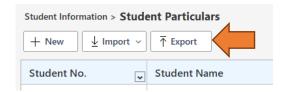


After completing the import of student particulars:

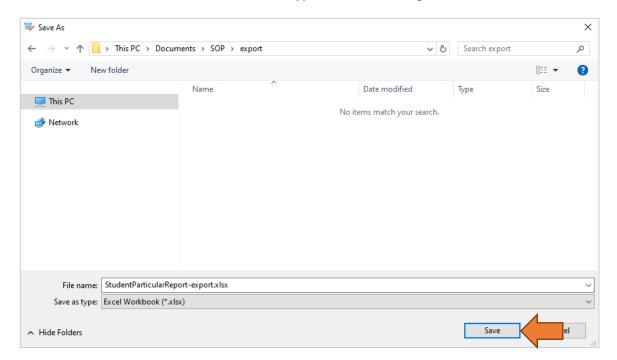
- student information in the student list will be replaced by the data in the import file

#### 3.1.5 Export Student Particulars

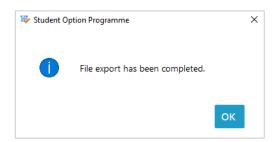
Users can export data to Excel or CSV file for manipulation. The exported file can be used as a template for importing student particulars. Click "Export" button.



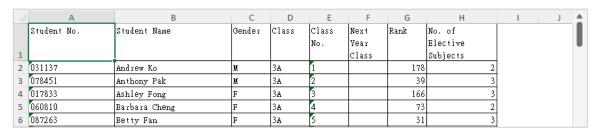
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



The file export is completed.



Below shows a sample exported file.



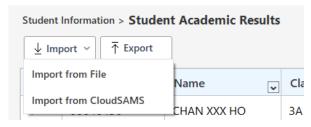
#### 3.2 Student Academic Results

Click Main Menu (Student Information → Student Academic Results) to browse the student academic results.



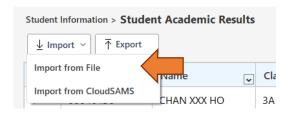
# 3.2.1 Import Student Academic Results

Users can import data via Excel or CSV file. Click "Import" button to choose "Import from File" or "Import from CloudSAMS".

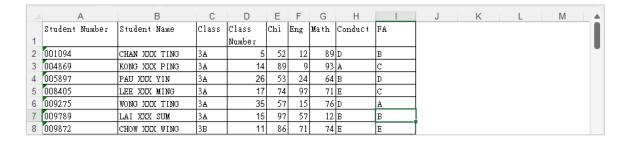


## 3.2.1.1 Import from File

Click "Import from File" button.



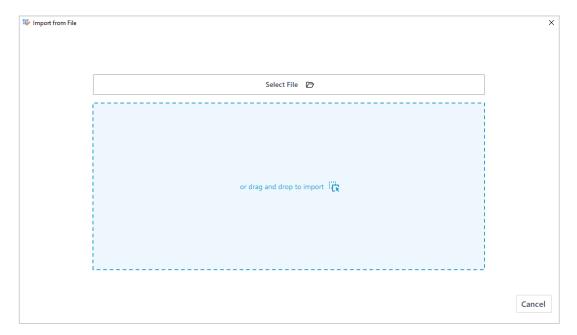
Below shows a sample Excel file.



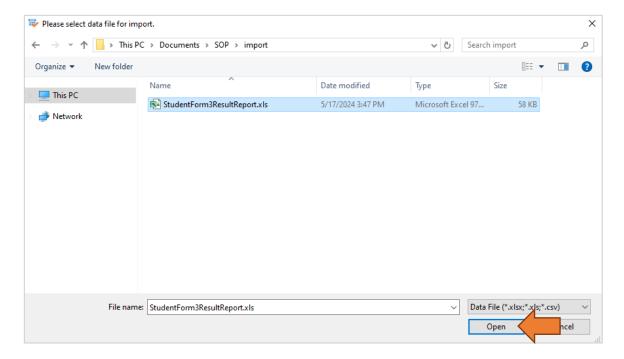


To obtain file template for import, please refer to 3.2.2 Export Student Academic Results.

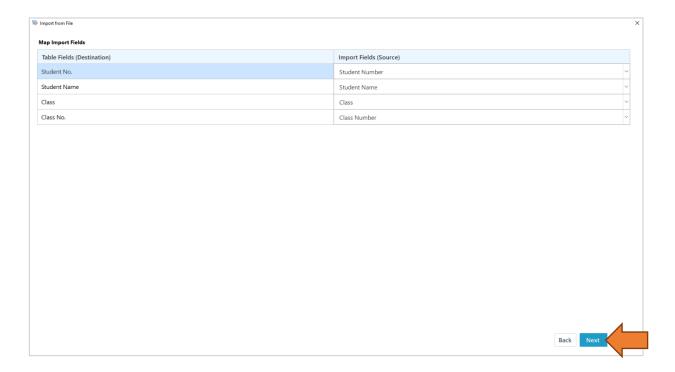
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



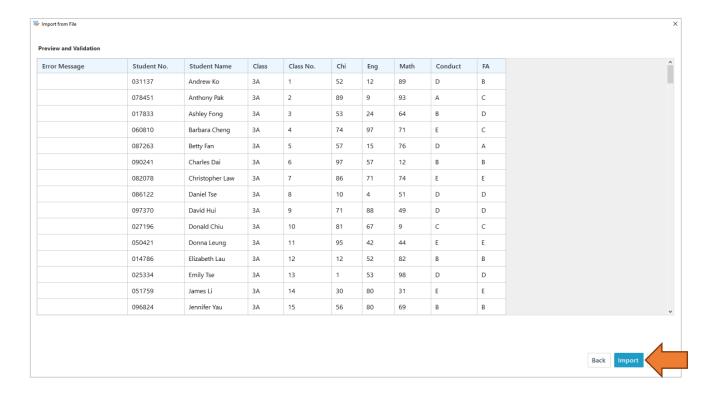
Select the file for import and click "Open" button.



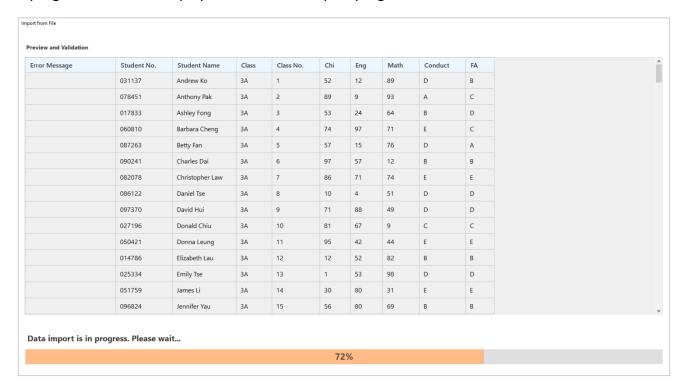
The system will map the import fields automatically based on the column titles in the import file. Users can also select the import fields manually. Click "Next" button when all the fields are mapped to start the data validation.



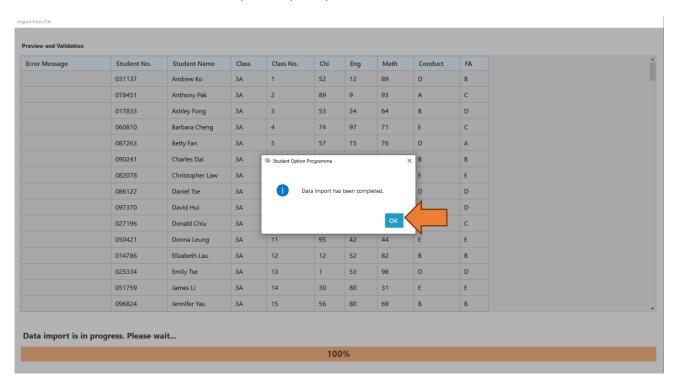
If the data is invalid, warning message(s) will be displayed under "Error Message" column. If no error is encountered, click "Import" button.



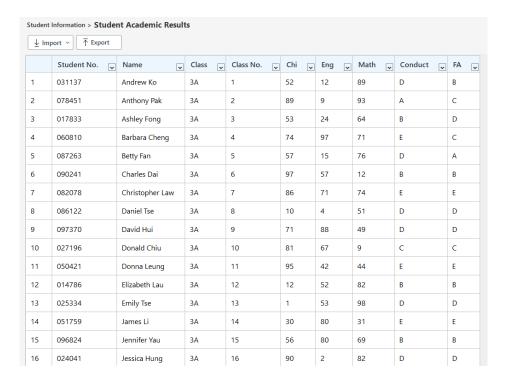
A progress bar will be displayed to show the import progress.



#### Click "OK" button to close the completion prompt box.



The data is imported and displayed in the student list.

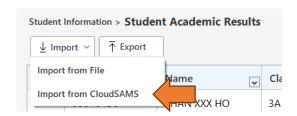


After completing the import of student academic results:

- academic results of existing students will be updated by the data in the import file
- any updates will be synchronised to the elective subject allocation order page (for allocation by overall ranking)

## 3.2.1.2 Import from CloudSAMS

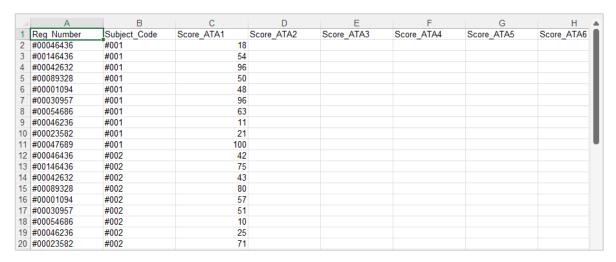
Click "Import from CloudSAMS" button.



Below shows a sample Excel file of the academic subjects exported from CloudSAMS.



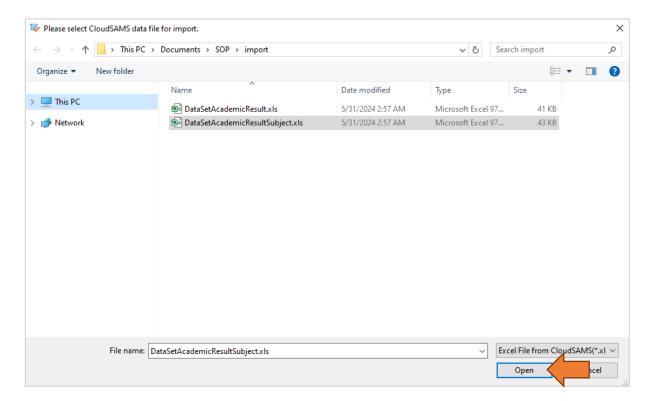
Below shows a sample Excel file of the student academic results exported from CloudSAMS.



Click the "Select Academic Subject File" button to choose a file or drag and drop a file to the blue area on the left for import.



Select the academic subject file for import and click "Open" button.

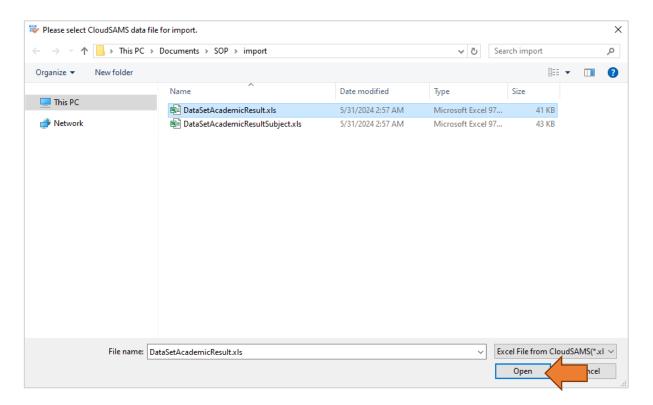


The selected file name will be displayed on "Selected File" field of the "Academic Subject File".

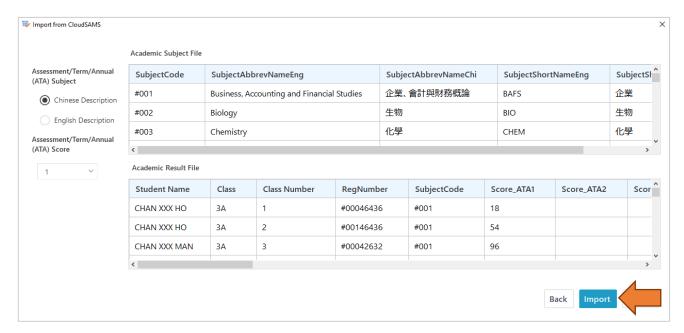
Click "Select Academic Result File" button to choose a file or drag and drop a file to the blue area on the right for import.



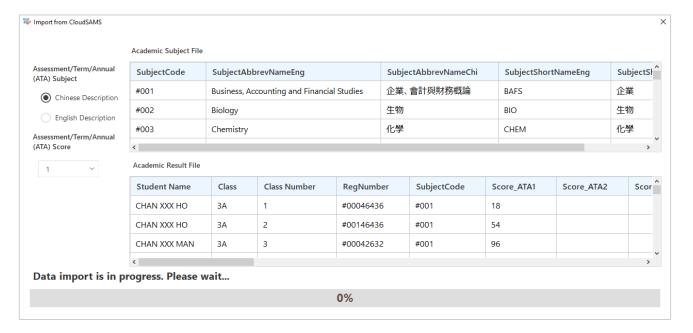
Select the academic result file for import and click "Open" button.



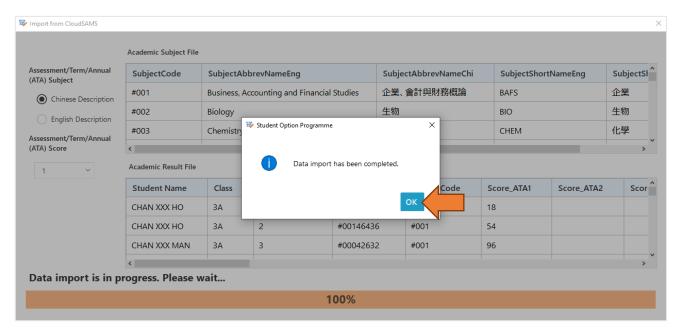
Select "Assessment/Term/Annual (ATA) Subject" and "Assessment/Term/Annual (ATA) Score". The data to be imported will be shown in the tables on the right-hand side for preview. Click the "Import" button to import the data.



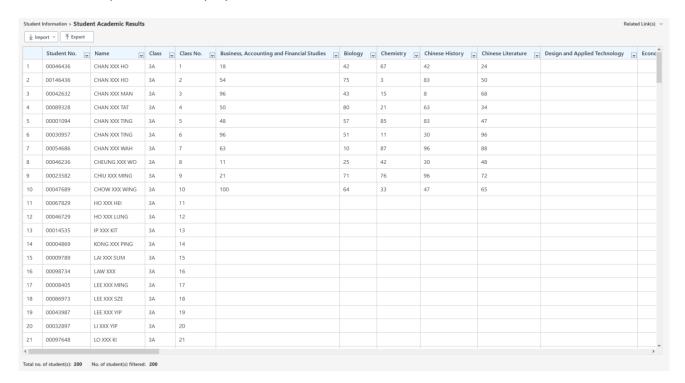
A progress bar will be displayed to show the import progress.



## Click "OK" button to close the completion prompt box.



The data is imported and displayed in the student list.

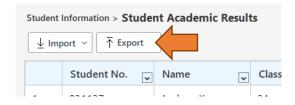


After completing the import of student academic results:

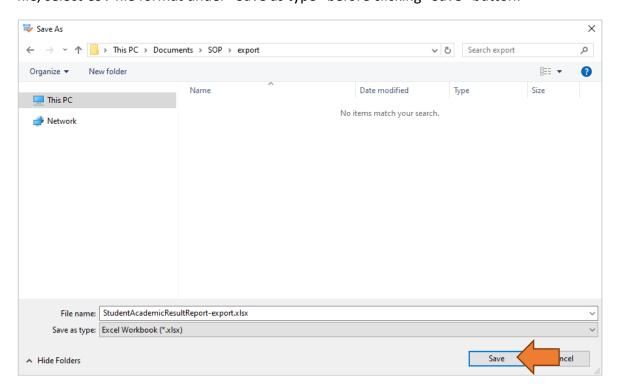
- academic results of existing students will be updated by the data in the import file
- any updates will be synchronised to the Elective Subject Allocation Order page

#### 3.2.2 Export Student Academic Results

Users can export data to Excel or CSV file for manipulation. The exported file can be used as a template for importing student academic results. Click the "Export" button.



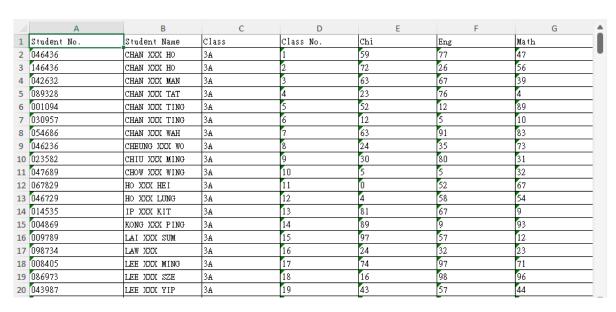
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.



#### Below shows a sample exported file.



# 4. Elective Subject Information

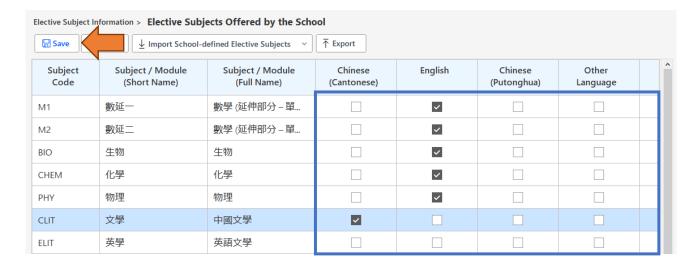
# 4.1 Elective Subjects Offered by the School

Click Main Menu (Elective Subject Information  $\rightarrow$  Elective Subjects Offered by the School) to browse the elective subject information.



# 4.1.1 Setup Elective Subjects Offered by the School

In the "Elective Subjects Offered by the School" page, check the checkbox of the subject/ module under the relevant Medium of Instruction (MOI) that will be offered, and click "Save" button.



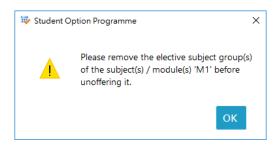
The changes are saved.



The selected elective subjects with related MOI will be displayed in the "Elective Subject Group Setup" page for users to do further action.

#### Validation:

If the elective subject has one or more elective subject groups, users cannot un-offer it and the below message will be displayed. Click "OK" button to go back to the edit page of "Elective Subjects Offered by the School".

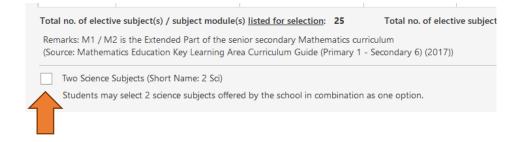


After selecting and saving the elective subjects offered by the school:

- any updates will be synchronised to the Elective Subject Group Setup page, Input Student Options page and Elective Subject Allocation Orders page (for allocation by elective subject queue)

# 4.1.2 Setup Two Science Subjects as One Option (applicable to allocation by overall ranking)

Check the "Two Science Subjects" checkbox (on the bottom of the page) to offer the option of two science subjects to students.



#### Click "Save" button.



The changes are saved.

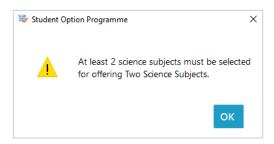


After completing the update of the two science subjects' option:

 The Input Student Options page will be updated and the SOP will allow users to select two science subjects as one option.

#### Validation:

At least 2 science subjects must be offered otherwise the below message will be displayed.

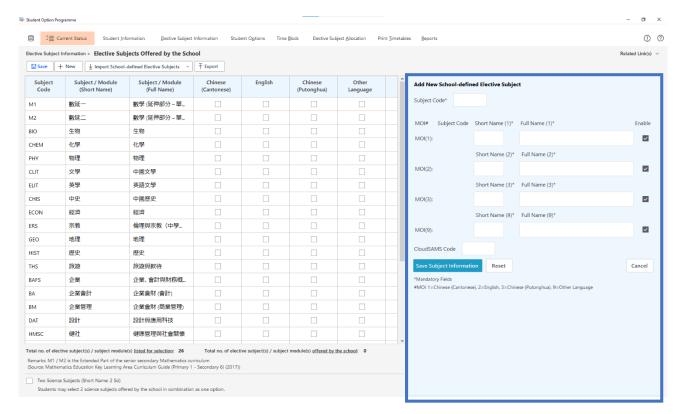


## 4.1.3 Add a New School-defined Elective Subject

Click "New" button to add a new school-defined elective subject to the elective subject list.



Input the School-defined Elective Subject Information in the Action Area and click "Save Subject Information" button.



#### A new record is added.



The new record will be displayed in the elective subject list.



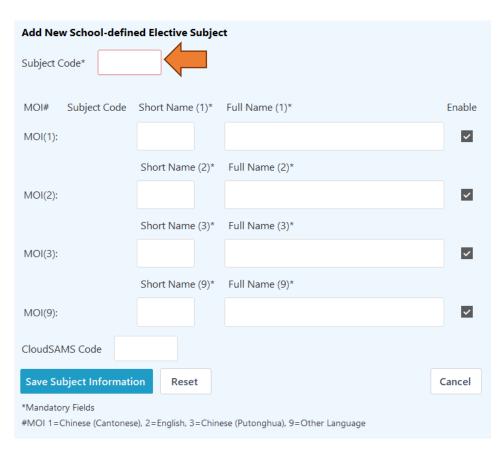


To input the school-defined elective subjects in one go, please refer to 4.1.6 <u>Import School-defined Elective Subjects</u>.

#### Validation:

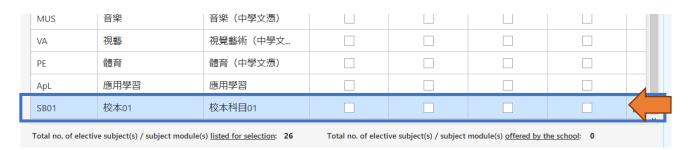
If any mandatory field is not filled in, the system will prompt a warning message and highlight the field in red.



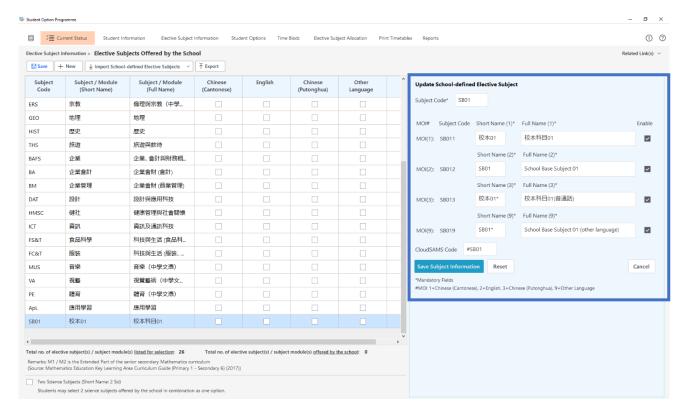


# 4.1.4 Update School-defined Elective Subjects

Double click a school-defined elective subject record in the elective subject list to update the subject information.



Input the information of the school-defined elective subject in the Action Area, and click "Save" button.



The selected record is updated.

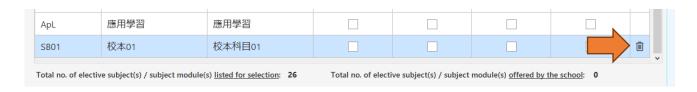




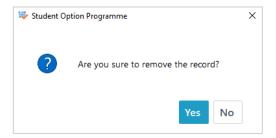
To update the school-defined elective subjects in one go, please refer to 4.1.6 <u>Import School-defined Elective Subjects</u>.

# 4.1.5 Delete a School-defined Elective Subjects

Click the delete icon ( iii ) to delete a school-defined elective subject from the elective subject list.



Click "Yes" button to confirm the deletion.

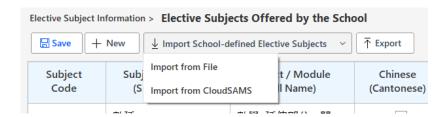


The selected record is deleted.



## 4.1.6 Import School-defined Elective Subjects

Users can import data via Excel or CSV file. Click "Import" button to choose "Import from File" or "Import from CloudSAMS".

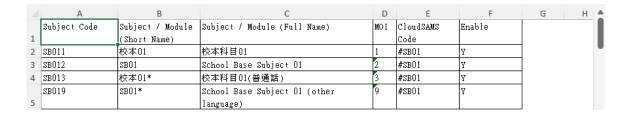


# 4.1.6.1 Import from File

Click "Import from File" button.



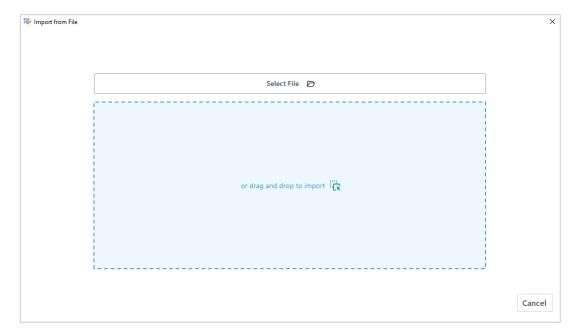
Below shows a sample Excel file.



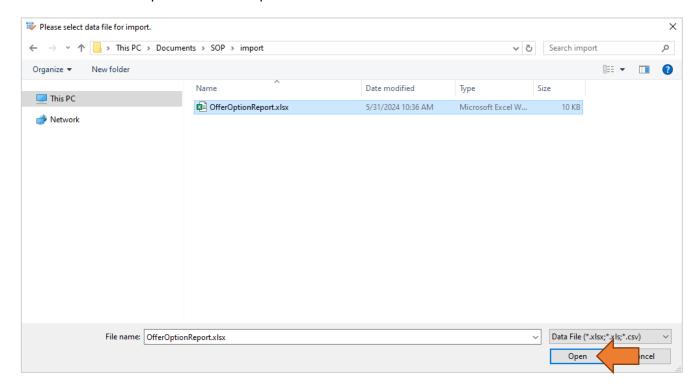


To obtain a file template for import, please refer to 4.1.7 Export All Subjects/ Modules.

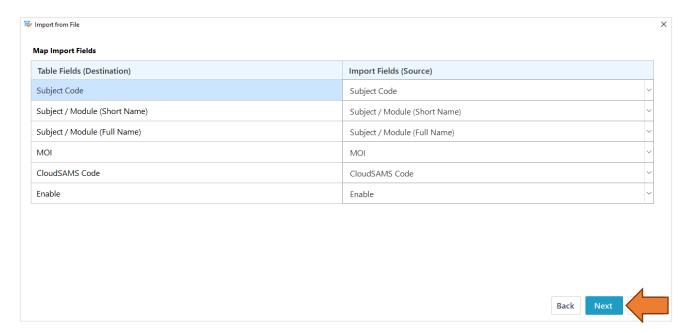
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



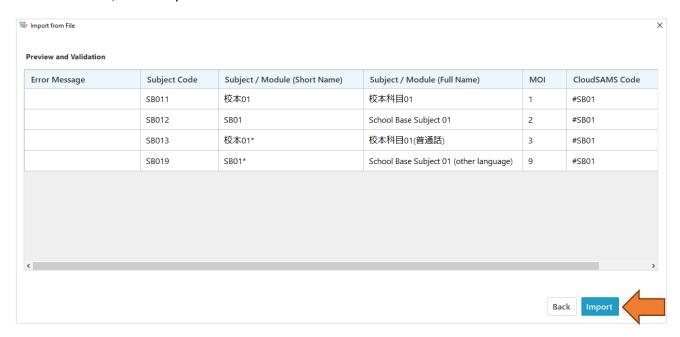
Select the file for import and click "Open" button.



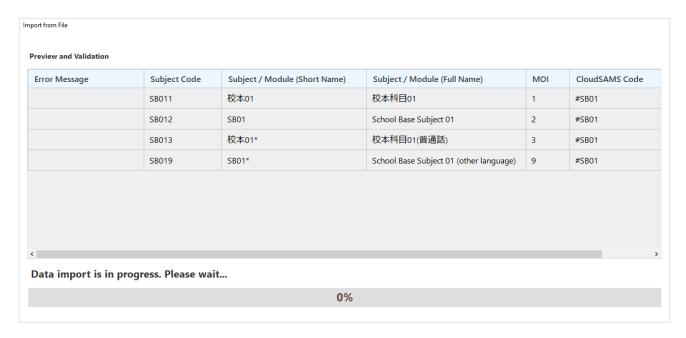
The system will map the import fields automatically based on the column titles in the import file. Users can also select the import fields manually. Click "Next" button when all the fields are mapped to start the data validation.



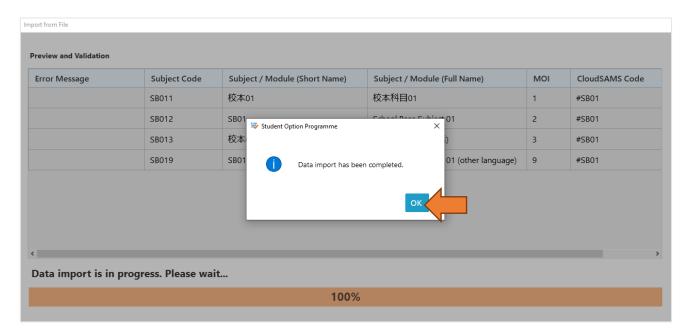
If the data is invalid, warning message(s) will be displayed under "Error Message" column. If no error is encountered, click "Import" button.



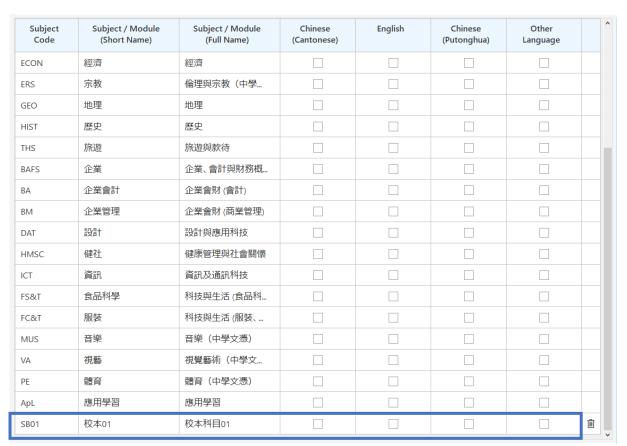
A progress bar will be displayed to show the import progress.



Click "OK" button to close the completion prompt box.



The data is imported and displayed on the list.

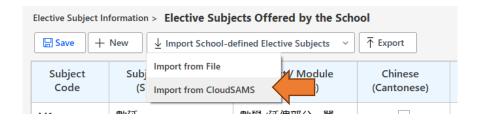


After completing the import of school-defined elective subjects:

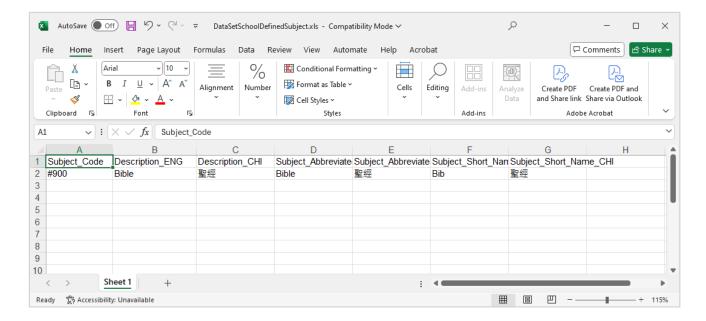
- school-defined elective subject information in the elective subject list will be replaced by the data in the import file

## 4.1.6.2 Import from CloudSAMS

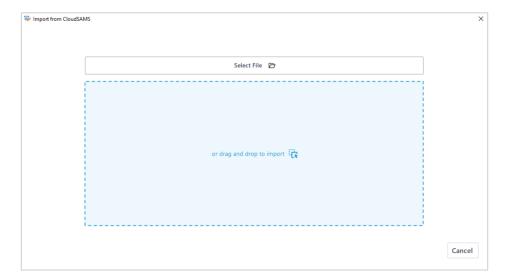
Click "Import from CloudSAMS" button.



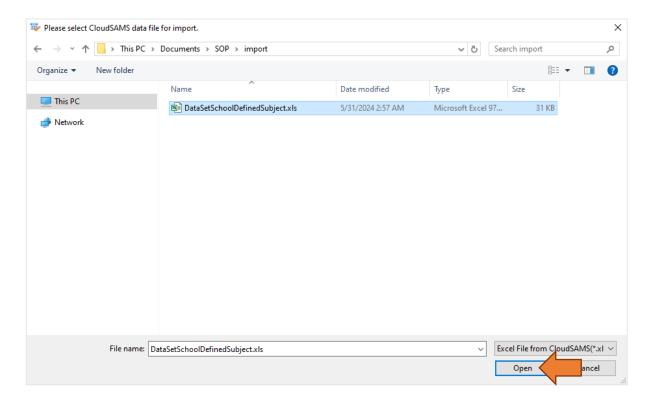
Below shows a sample Excel file exported from CloudSAMS.



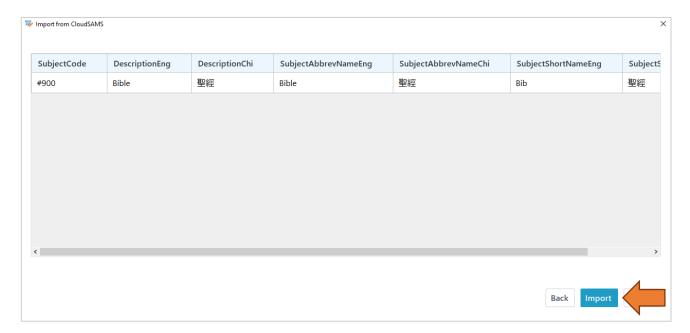
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



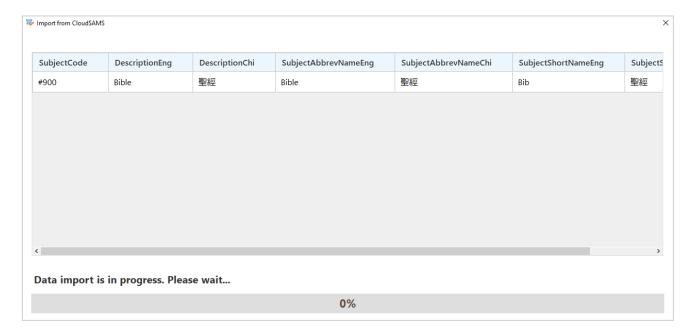
Select the file for import and click "Open" button.



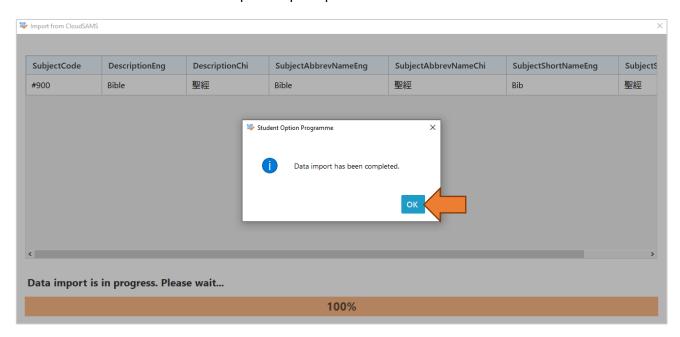
The data to be imported will be shown in the table for preview. Click "Import" button to import the data.



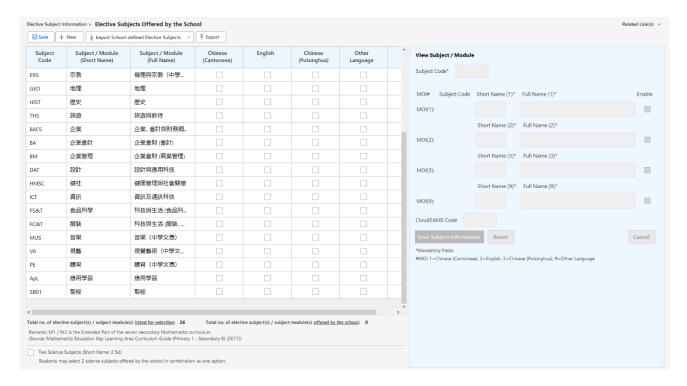
A progress bar will be displayed to show the import progress.



# Click "OK" button to close the completion prompt box.



The data is imported and is displayed in the elective subject list.



After completing the import of school-defined elective subjects:

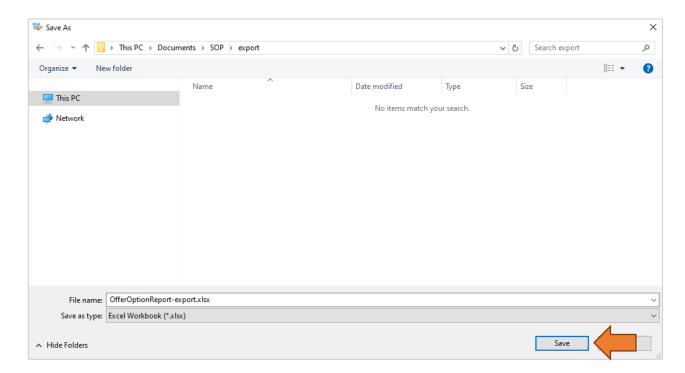
 school-defined elective subject information in the elective subject list will be replaced by the data in the import file

# 4.1.7 Export All Subjects/ Modules

Users can export data to Excel or CSV file for manipulation. The exported file can be used as a template for importing school-defined elective subjects. Click "Export" button.



Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.

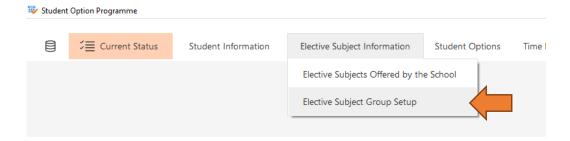


#### Below shows a sample exported file.



# 4.2 Elective Subject Group Setup

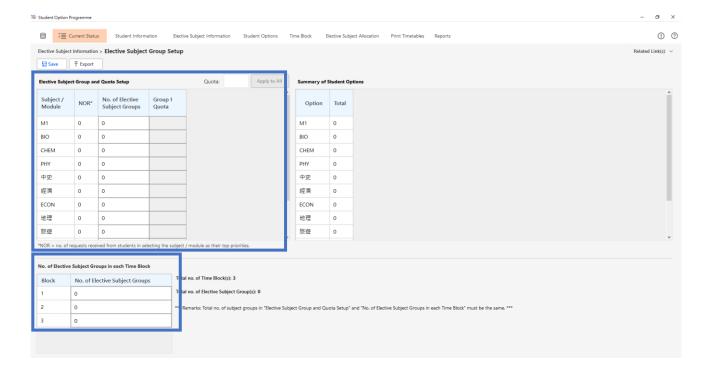
Click Main Menu (Elective Subject Information → Elective Subjects Group Setup) to browse the elective subject group information.



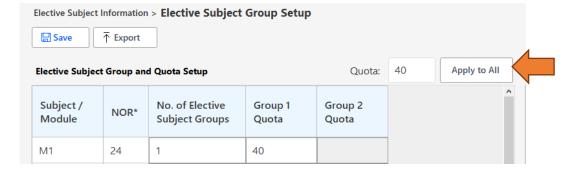
## 4.2.1 Setup Elective Subject Groups and Quota

In the "Elective Subject Group Setup" page, users can input:

- "No. of Elective Subject Groups" for each subject/ module in "Elective Subject Group and Quota Setup" table,
- "Group Quota" (i.e., the size of each elective subject group) and
- "No. of Elective Subject Groups" for each time block in "No. of Elective Subject Groups in each Time Block" table, and then click "Save" button.



Fill in "Quota" and click "Apply to All" button to apply the same quota to all "Group Quota" fields.

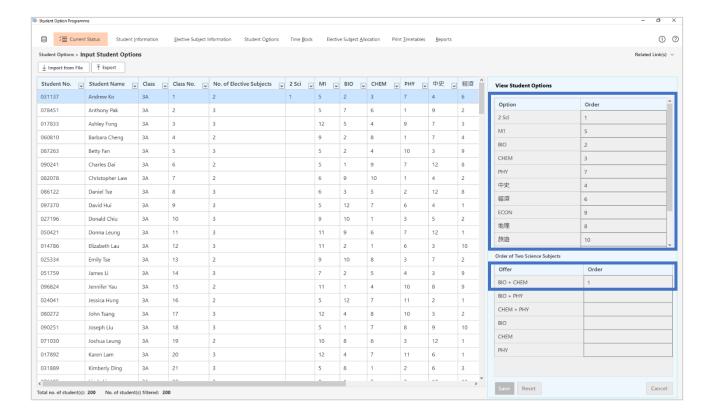


The changes are saved.

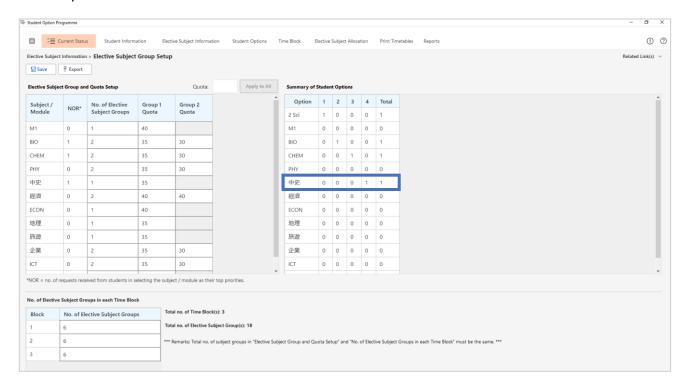


The "Number of Requests (NOR)" is calculated based on the best allocation result of each student.

For example, if a student selects two science subjects as his/ her top priorities, the best allocation result should be "BIO", "CHEM" and "中史".

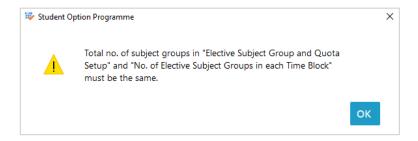


The student selected "BIO" and "CHEM" as "Two Science Subjects" (top priority) and then separately selected "BIO" and "CHEM" as the 2nd priority and the 3rd priority. Since "BIO" and "CHEM" are already included in the option of "Two Science Subjects", to avoid double counting the same elective subject, "中史" is considered as the 3rd priority and also counted as NOR although "中史" is his/ her fourth option.

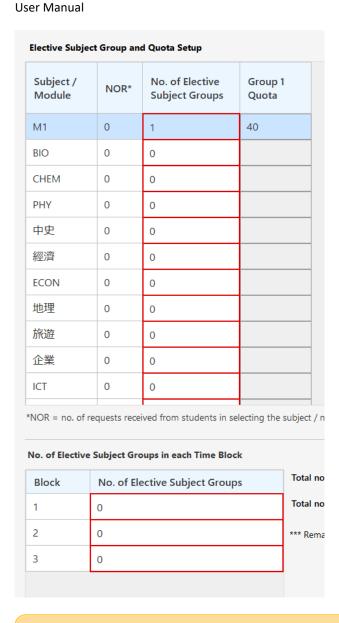


#### Validation:

If the total no. of elective subject groups in Elective Subject Group and Quota Setup is not equal to the total no. of elective subject groups in each Time Block, users cannot save both records and the below message will be displayed and the fields will be highlighted in red.



SOP Version 2.2





To update the no. of time blocks, please refer to 2.5 <u>System Settings</u>.

After completing the update of elective subject group setup:

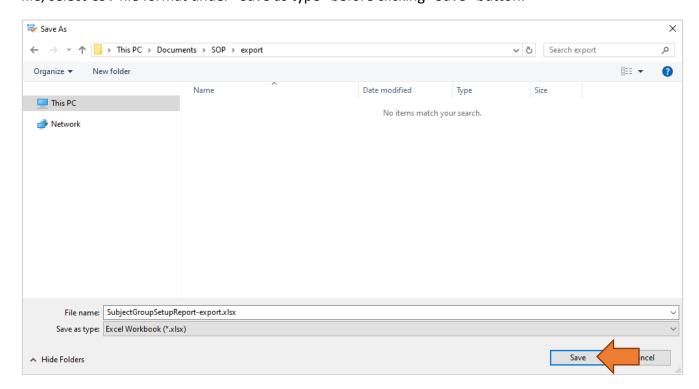
- any updates will be synchronised to the Elective Subject Group Constraints Setup and Generate/Maintain Time Blocks page.

#### 4.2.2 Export Elective Subject Groups

Users can export data to Excel or CSV file for manipulation. Click "Export" button.



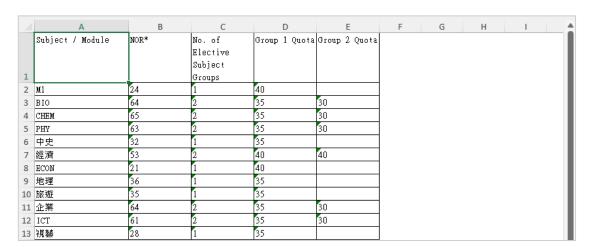
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.



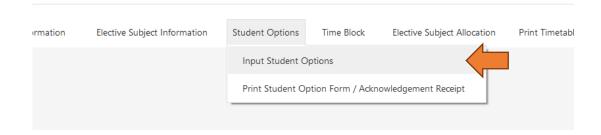
#### Below shows a sample exported file.



# 5. Student Options

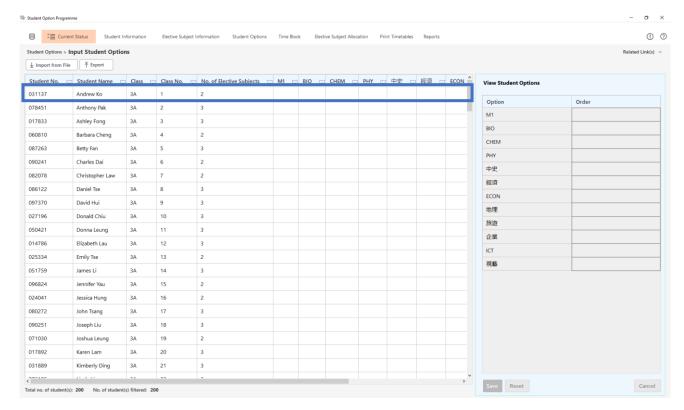
# **5.1 Input Student Options**

Click Main Menu (Student Options → Input Student Options) to browse the student options.



# 5.1.1 Update Student Options

In the "Input Student Options" page, double click a student record to input his/her options.



Input the student options in the Action Area, and click "Save" button. If option of Two Science Subjects is offered and users fill in an order number to the offer of "2 Sci", an extra table "Order of Two Science Subjects" will be displayed and users have to fill in the order of the science subjects involved. Click "Save" button to save the record.





The selected record is updated.

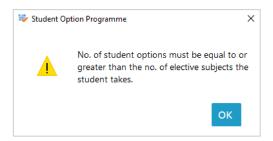




To update the options of all students in one go, please refer to 5.1.2 <u>Import Student</u> Options.

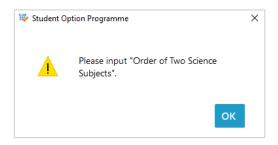
#### Validation:

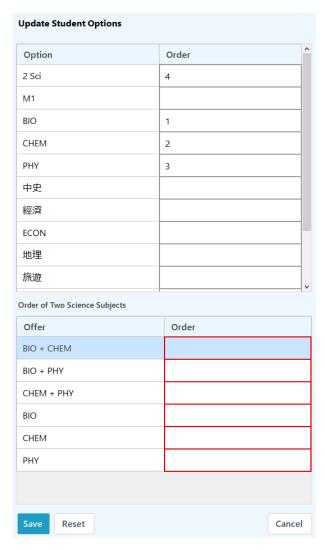
1. If the no. of student options is fewer than the no. of elective subjects the student takes, the message below will be displayed and all the student option fields will be highlighted in red border.





2. If the order of "2 Sci" is filled in, but none of the "Order of Two Science Subjects" fields is filled in, a warning message will be displayed, and all the order fields under "Order of Two Science Subjects" will be highlighted in red border.



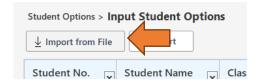


After completing the input of student options:

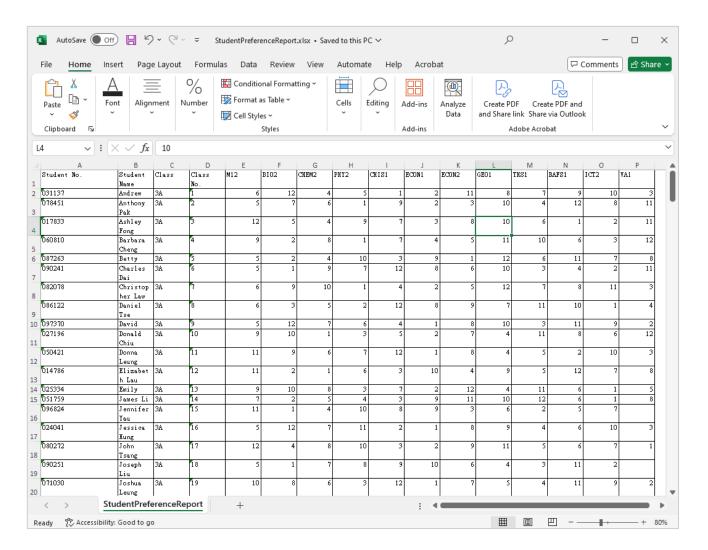
- Any updates will be synchronised to the Elective Subject Group Setup page, Conflict Matrix Enquiry page and Allocate Elective Subjects page

## 5.1.2 Import Student Options

Users can import data via Excel or CSV file. Click "Import from File" button.



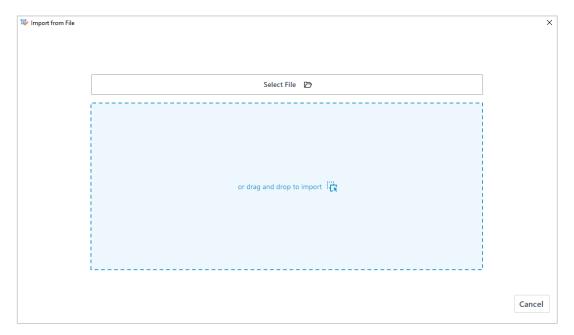
Below shows a sample Excel file.



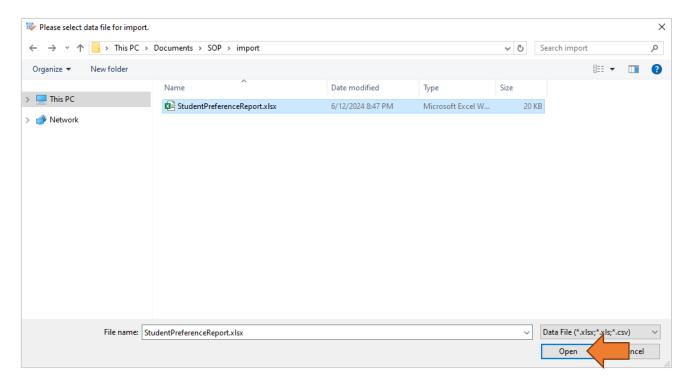


To obtain file template for import, please refer to 5.1.3 Export Student Options.

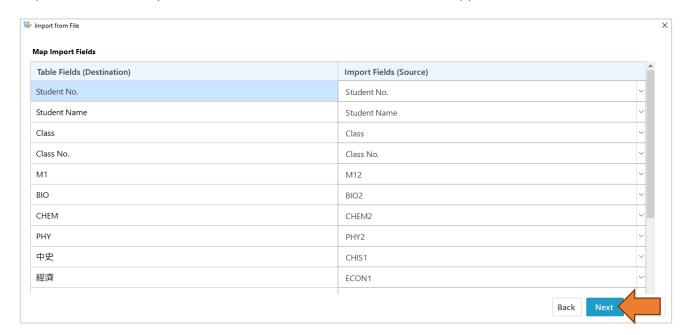
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



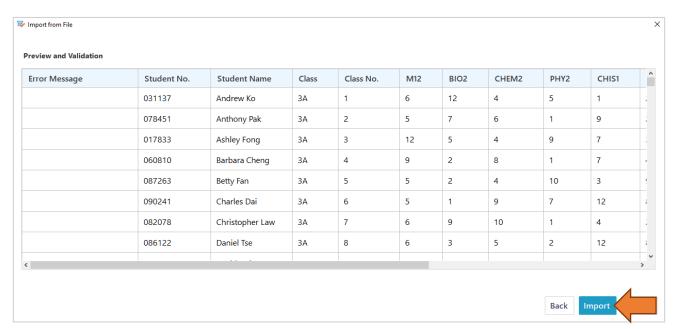
Select the file for import and click "Open" button.



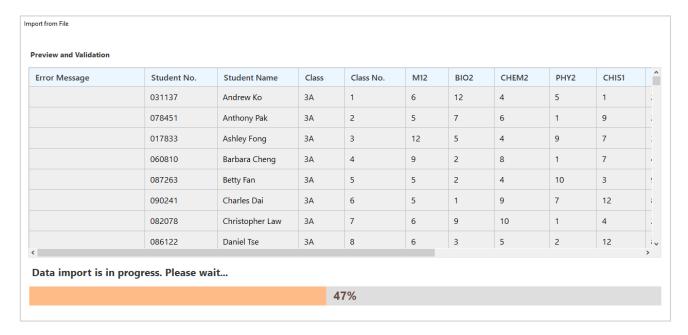
The system will map the import fields automatically based on the column titles in the import file. Subject Code with MOI No. is used for the mapping of one elective subject. Users can also select the import fields manually. Click "Next" button when all the fields are mapped to start the data validation.



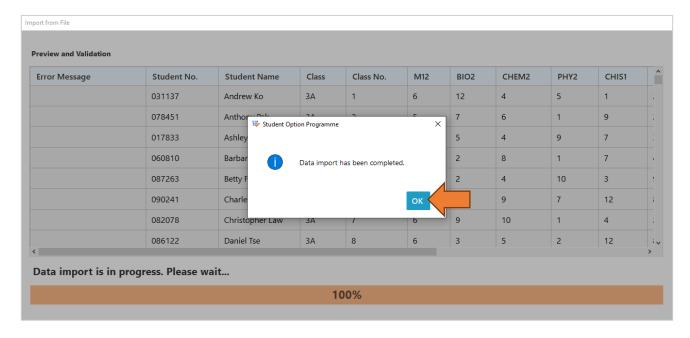
If the data is invalid, warning message(s) will be displayed under the "Error Message" column. If no error is encountered, click "Import" button.



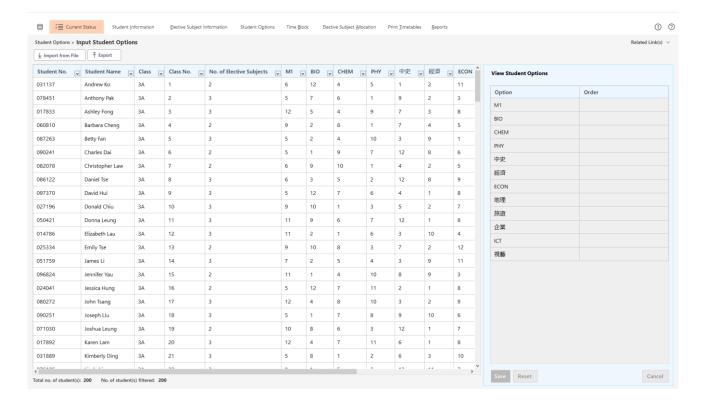
A progress bar will be displayed to show the import progress.



# Click "OK" button to close the completion prompt box.



The data is imported and displayed in the student options list.



After completing the import of student options:

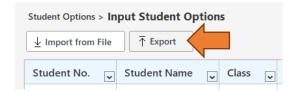
- options of existing students will be updated by the data in the import file
- any updates will be synchronised to the Elective Subject Group Setup page, Conflict Matrix Enquiry page and Allocate Elective Subjects page



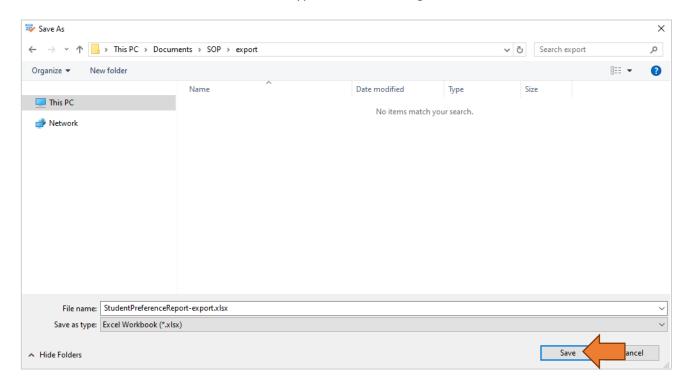
To obtain a file template for import, please refer to 5.1.3 Export Student Options.

#### 5.1.3 Export Student Options

Users can export data to Excel or CSV file for manipulation. The exported file can be used as a template for importing student options. Click the "Export" button.



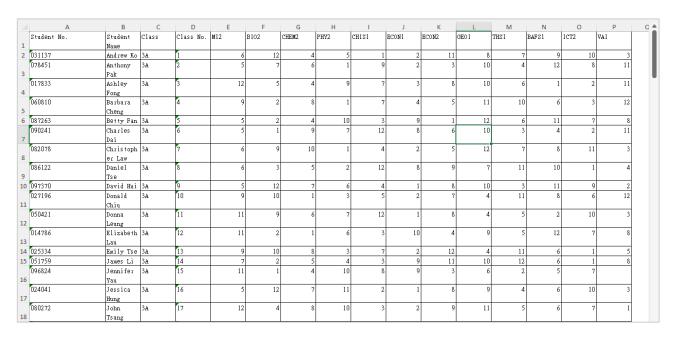
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.

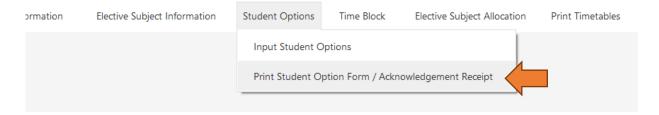


#### Below shows a sample exported file.



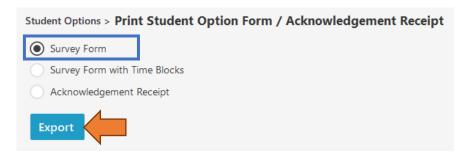
# 5.2 Print Student Option Forms / Acknowledgment Receipt

Click Main Menu (Student Options  $\rightarrow$  Print Student Option Forms / Acknowledgment Receipt) to export the sample forms provided for printing.

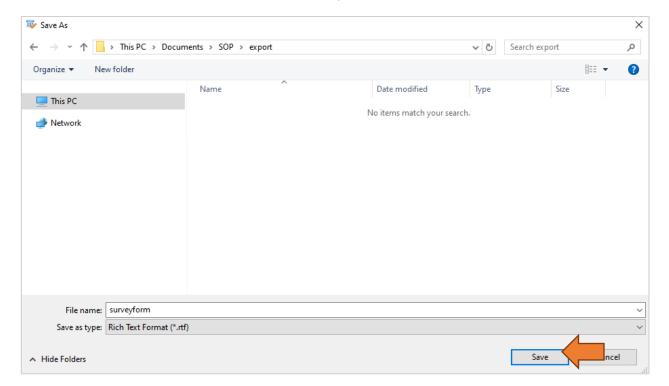


## 5.2.1 Print Survey Form

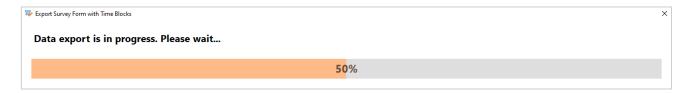
In the "Print Student Option Forms / Acknowledgment Receipt" page, select "Survey Form" and click the "Export" button.



Select destination folder and define the filename, then click "Save" button.



A progress bar will be displayed to show the export progress.



#### The file export is completed.

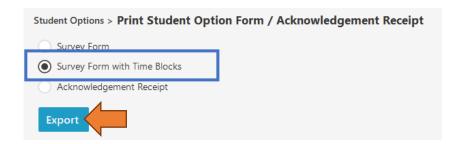


Below is a sample exported file opened by MS Word. Users can modify the form before distribution.

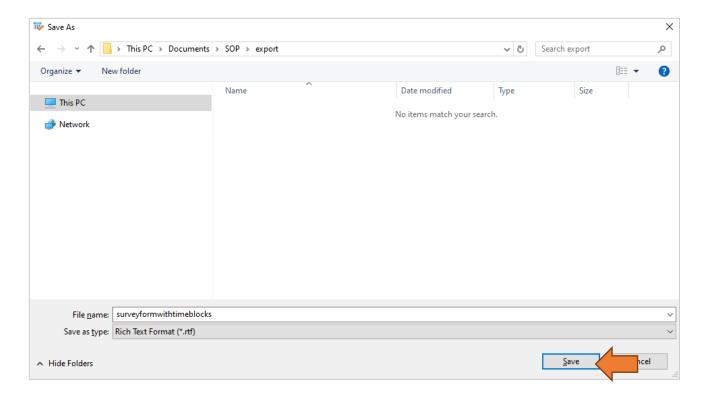
preference in the "Two Science Subjects" of science subjects in the table on the right. If the	ne 2 science subjects	cannot be allocated due to she	ortage of places
or whatsoever reason, the school will alloca options in the table on the right.	ate i science subjec	to the student in accordance	e with his/ her
Selected Option		Order of two science subjects (Input order of two science subjects only when a student has chosen 2 science subjects in	
Offer	Order	his/her selected option.) Offer	Order
Two Science Subjects	Order	Biology + Chemistry	Order
Mathematics (Extended Part - Module 1	)	Biology + Physics	
Biology	<del>'                                     </del>	Chemistry + Physics	
Chemistry		Biology	
Physics		Chemistry	
中國歷史		Physics	
經濟			
Economics			
地理			
旅遊與款待			
企業、會計與財務概論			
Information and Communication			
Technology			
視覺藝術(中學文憑)			
Remarks: M1 / M2 is the Extended Part of the (Source: Mathematics Education Key Learnin			5) (2017))
Student Name:	Class:	Class No.: _	
Parent's Signature:	Danant's Name	Data	

## 5.2.2 Print Survey Form with Time Blocks

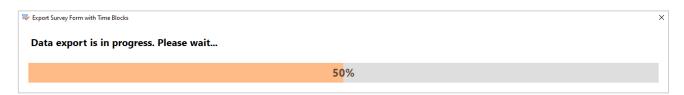
Select "Survey Form with Time Blocks" and click the "Export" button.



Select destination folder and define the filename, then click "Save" button.



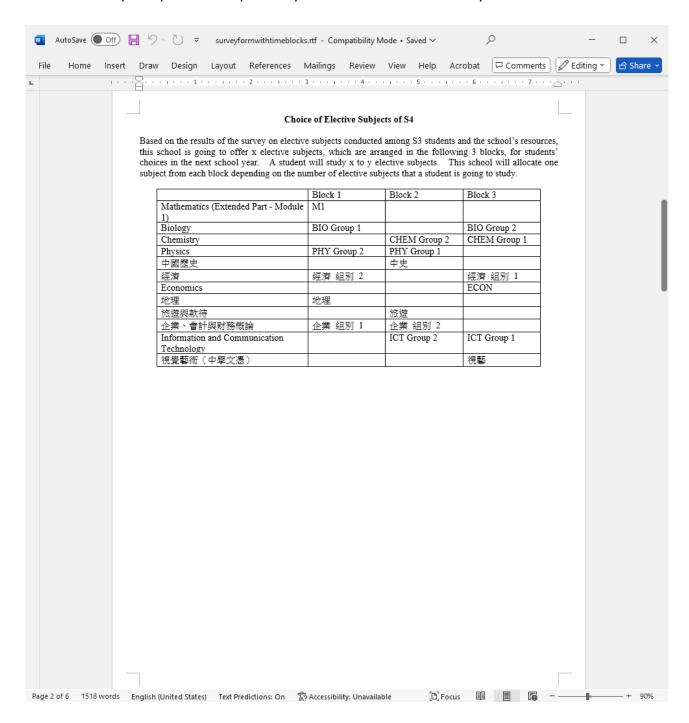
A progress bar will be displayed to show the export progress.



The file export is completed.

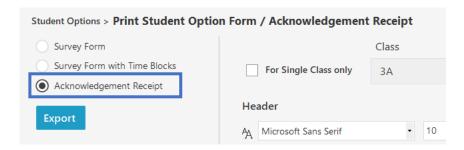


Below is a sample exported file opened by MS Word. Users can modify the form before distribution.

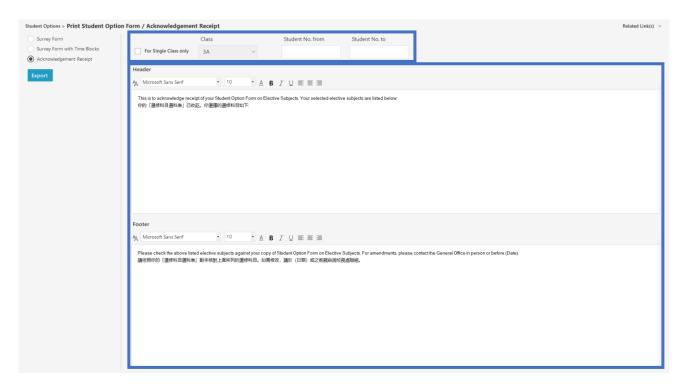


## 5.2.3 Print Acknowledgement Receipt

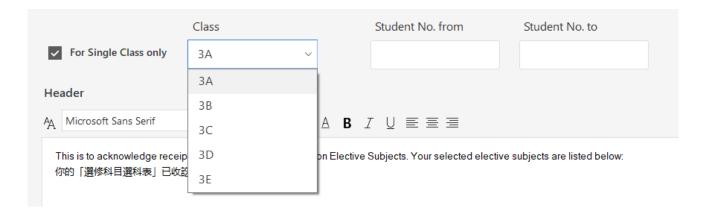
In the "Print Student Option Forms / Acknowledgment Receipt" page, select "Acknowledgement Receipt".



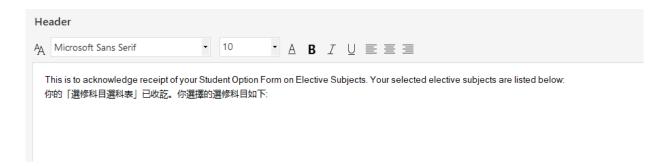
An area for setting up the Acknowledgement Receipt will appear on the right side. At the top, users can select a specific class or students for the Acknowledgement Receipt. At the bottom, the Header and Footer can be modified.



If only a specific class is to be included in the Acknowledgement Receipt, select the class at the top by ticking "For Single Class only" and choosing the class from the dropdown menu. To specify a group of students, input the "Student No. from" and "Student No. to". If both the class and student number are filled, the receipt will be exported with students that match both conditions. Leave all fields empty to include all students.

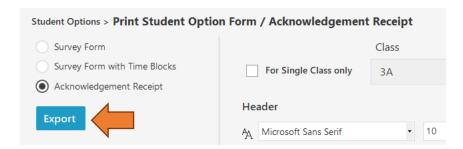


Edit the content, font style and font features of the Header/ Footer of the receipt in the text box.

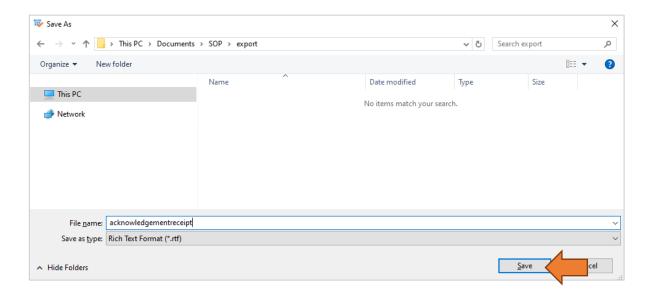




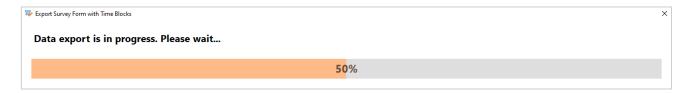
After all the setup is complete, click the "Export" button.



Select destination folder and define the filename, then click "Save" button.



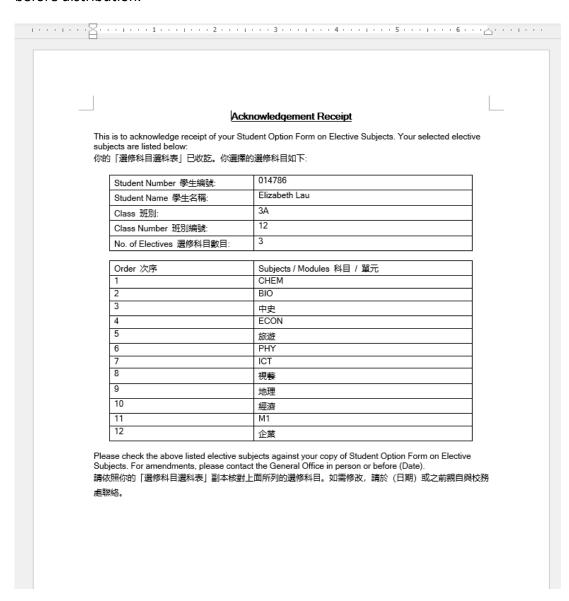
A progress bar will be displayed to show the export progress.



#### The file export is completed.



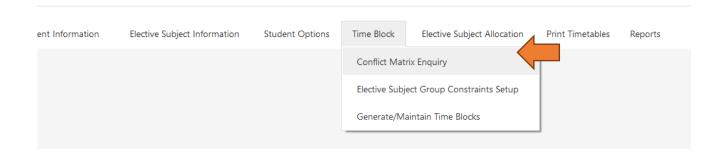
Below is a sample exported file opened by MS Word. Users can modify the Acknowledgment Receipt before distribution.



#### 6. Time Block

## **6.1 Conflict Matrix Enquiry**

Click Main Menu (Time Block  $\rightarrow$  Conflict Matrix Enquiry) to enquire the conflict matrix of student options for elective subject pairs.



## 6.1.1 Enquire Conflicts Matrix of Student Options

The "Conflict Matrix Enquiry" page shows the number of students between two subjects that are selected as their top priorities. A sample conflict matrix result is shown on the screen below. In the sample, 20 students have selected "企業" and "經濟" as their top priorities.

Users can make use of the information as a reference to decide which two subjects are better to be placed in different time blocks.

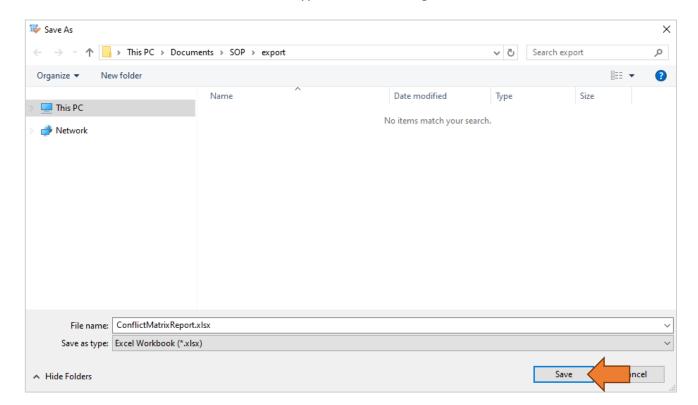


#### 6.1.2 Export Conflict Matrix

In the "Conflict Matrix Enquiry" page, click the "Export" button.



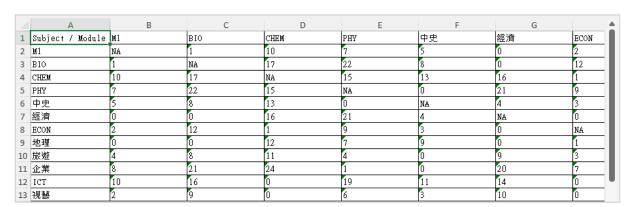
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.

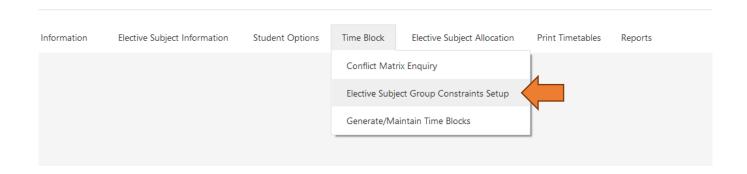


#### Below shows a sample exported file.



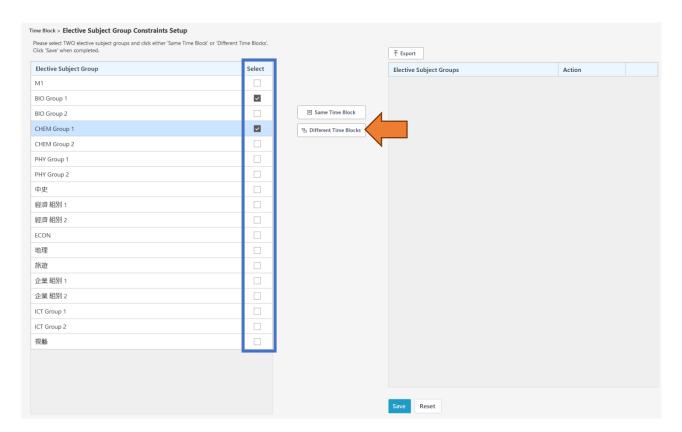
# 6.2 Elective Subject Group Constraints Setup

Click Main Menu (Time Block → Elective Subject Group Constraints Setup) to setup the elective subject group constraints.

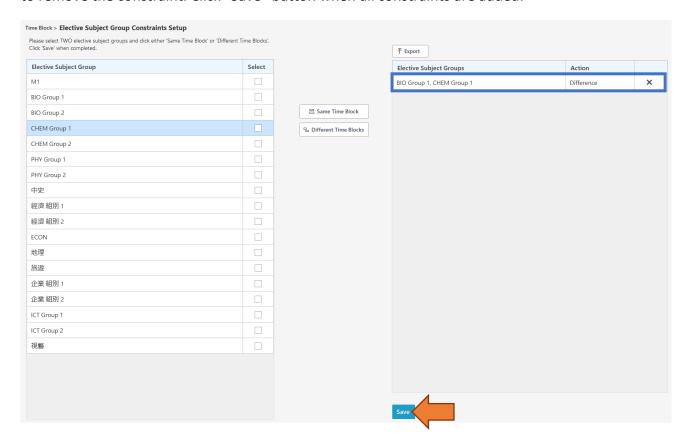


## 6.2.1 Set Two Subject Groups to be put into Different Time Blocks

In the "Elective Subject Group Constraints Setup" page, select two elective subject groups and click the "Different Time Blocks" button.



The constraint will be added to the constraint list on the right-hand side. Click the remove (×) button to remove the constraint. Click "Save" button when all constraints are added.

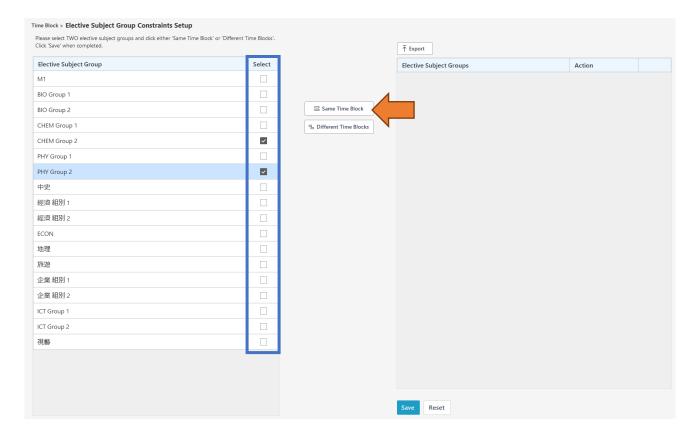


The constraint list is updated.

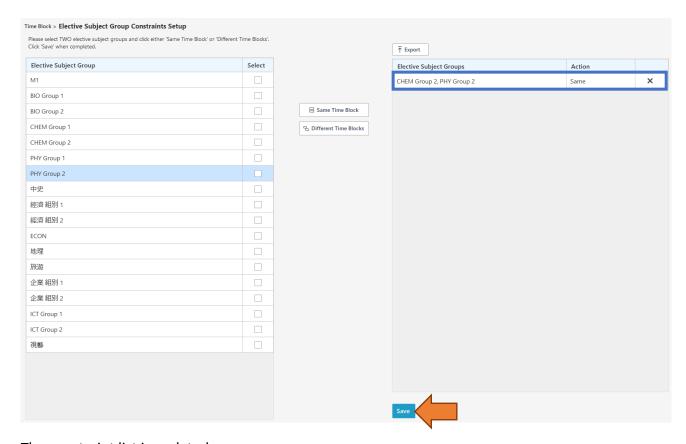


# 6.2.2 Set Two Subject Groups to be put into Same Time Block

In the "Elective Subject Group Constraints Setup" page, select two elective subject groups and click the "Same Time Block" button.



The constraint will be added to the constraint list on the right-hand side. Click the remove (×) button to remove the constraint. Click "Save" button when all constraints are added.

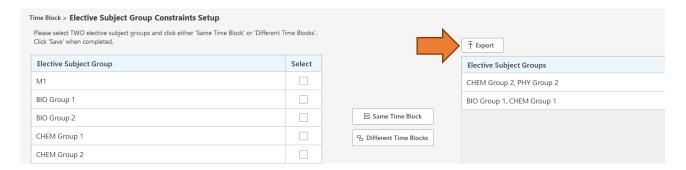


The constraint list is updated.

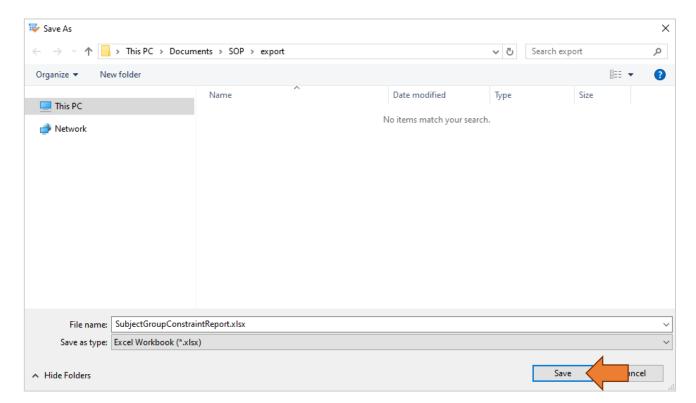


## 6.2.3 Export Subject Group Constraints

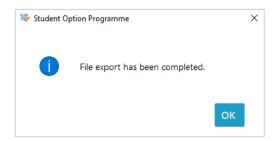
In the "Elective Subject Group Constraints Setup" page, click "Export" button.



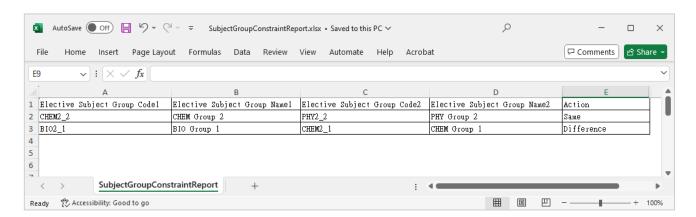
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.



Below shows a sample exported file.



#### 6.3 Generate / Maintain Time Blocks

Click Main Menu (Time Block → Generate/Maintain Time Blocks) to browse the time blocks.



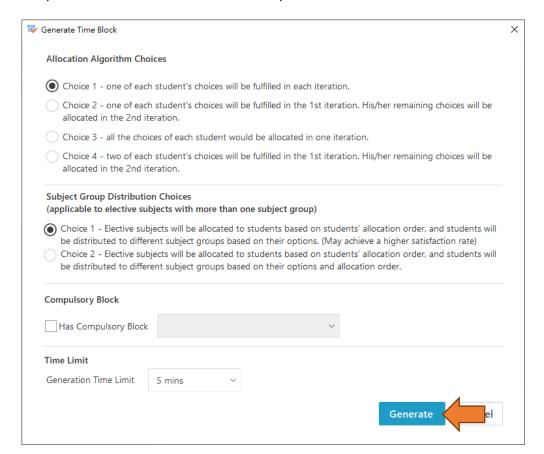
# 6.3.1 Generate Elective Subject Groups into Time Blocks based on Elective Subject Group Constraints

In the "Generate/Maintain Time Blocks" page, click "Generate Time Blocks" button and choose "based on elective subject group constraints".



Select the appropriate option for "Allocation Algorithm Choices" (applicable to elective subject allocation by overall ranking) and "Subject Group Distribution Choices" (applicable to elective subjects with multiple subject groups). Check the "Has Compulsory Block" checkbox and select the compulsory time block(s) if needed.

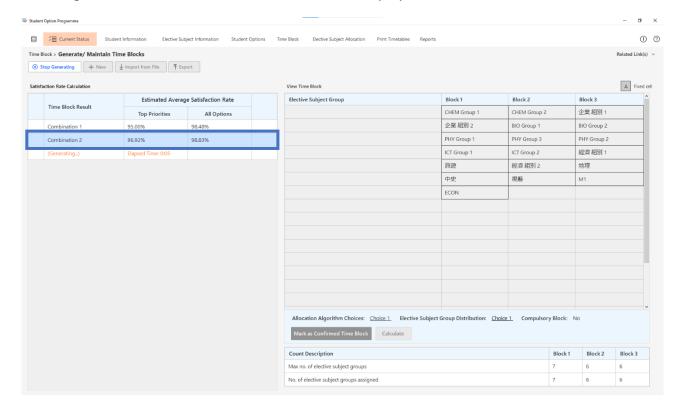
Then, select the "Generation Time Limit", and click "Generate" button.





For the details of Allocation Algorithm Choices and Subject Group Distribution Choices, please refer to Appendix III <u>Allocation Algorithm Choices (Overall Ranking)</u>, Appendix IV <u>Allocation Algorithm (Elective Subject Queue)</u> and Appendix V <u>Subject Group Distribution Choices</u>.

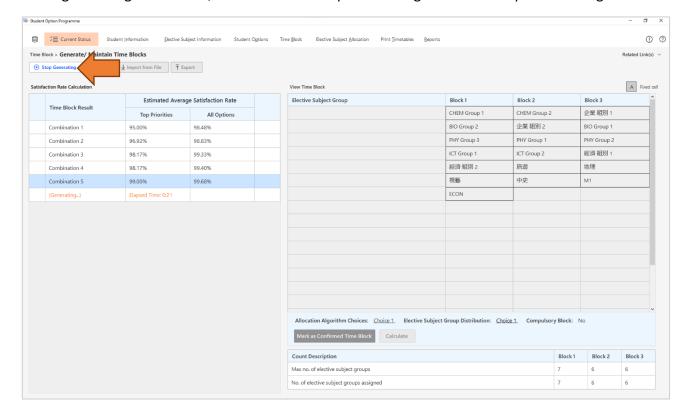
A number of time blocks with different combinations of elective subject groups will be generated and displayed in the time block list. The estimated satisfaction rate for the top priorities and all options of each generated time block will be calculated and displayed.



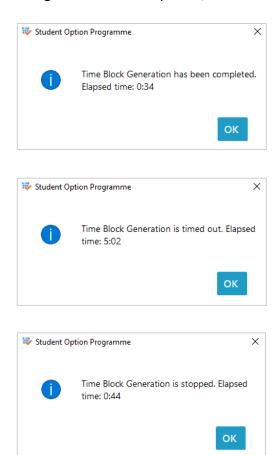


For the details of satisfaction rate calculation, please refer to Appendix II <u>Calculation of Satisfaction Rate</u>.

While generating time blocks, users can click "Stop Generating" button to stop time block generation.

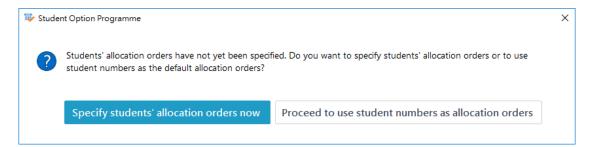


The generation is completed, timed out or stopped.



#### Reminder:

After clicking the "Generate Time Blocks" button, if students' allocation orders have not yet been defined, the below message will be displayed. Users can choose to specify the students' allocation orders, or proceed to use student numbers as allocation orders.

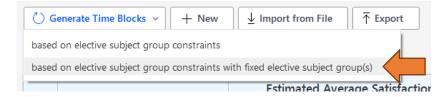




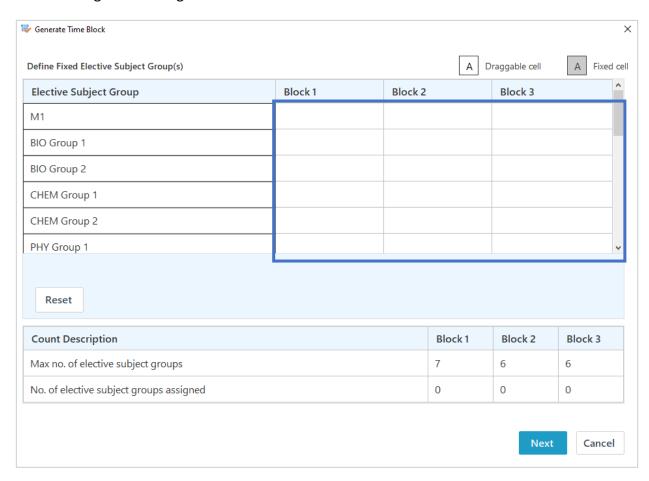
To define allocation orders, please refer to 7.1 <u>Elective Subject Allocation Orders</u>.

#### 6.3.2 Partial Generation of Time Blocks with Fixed Elective Subject Group(s)

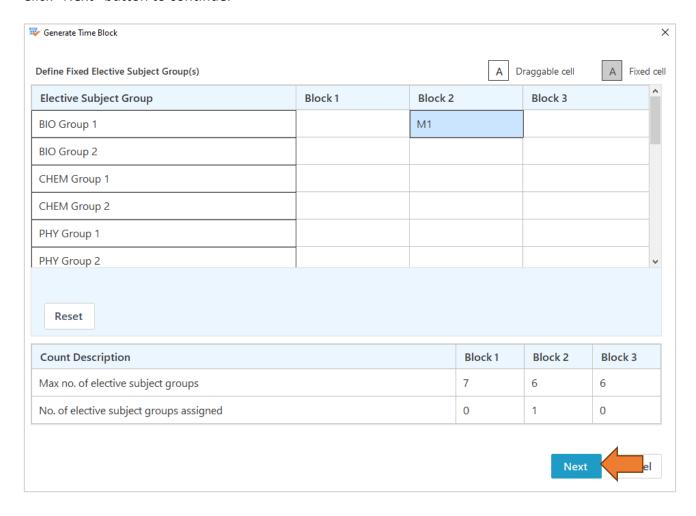
In the "Generate/Maintain Time Blocks" page, click "Generate Time Blocks" button to choose "based on elective subject group constraints and fixed elective subject group(s)".



Drag and drop elective subject group(s) to any time blocks, the dragged elective subject group(s) will be fixed under the time block. The SOP will not change the elective subject group(s) to other time blocks during time block generation.

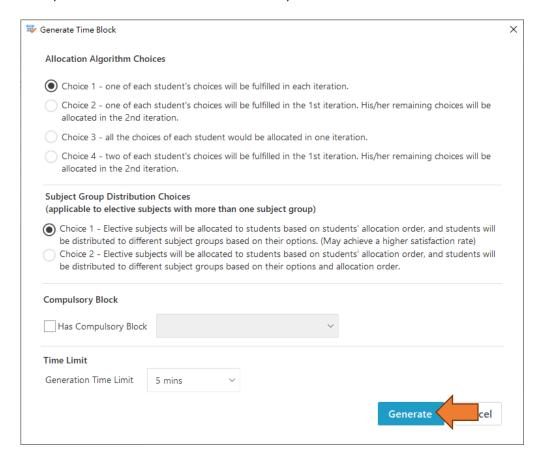


#### Click "Next" button to continue.



Select the appropriate option for "Allocation Algorithm Choices" (applicable to elective subject allocation by overall ranking) and "Subject Group Distribution Choices" (applicable to elective subjects with multiple subject groups). Check the "Has Compulsory Block" checkbox and select the compulsory time block(s) if needed.

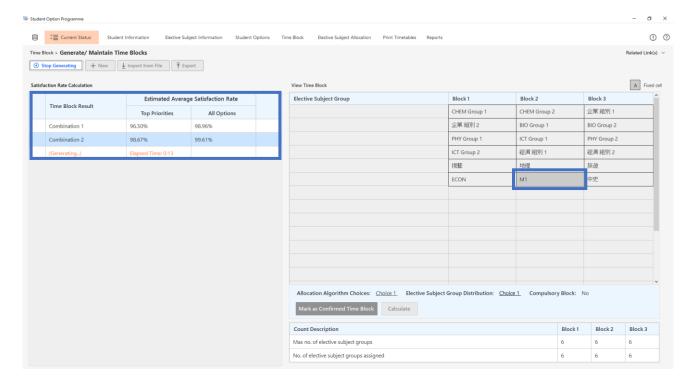
Then, select the "Generation Time Limit", and click "Generate" button.





For the details of Allocation Algorithm Choices and Subject Group Distribution Choices, please refer to Appendix III <u>Allocation Algorithm Choices (Overall Ranking)</u>, Appendix IV <u>Allocation Algorithm (Elective Subject Queue)</u> and Appendix V <u>Subject Group Distribution</u> Choices.

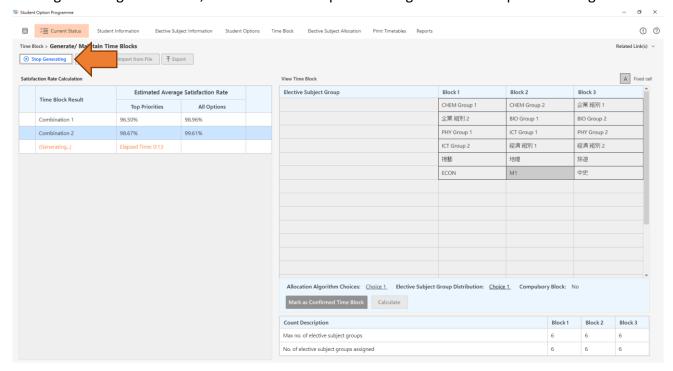
A number of time blocks with different combinations of elective subject groups will be generated and displayed in the time block list. The estimated satisfaction rate for the top priorities and all options of each generated time block will be calculated and displayed. The elective subject group(s) will be fixed at the defined time block for all the generated combinations.



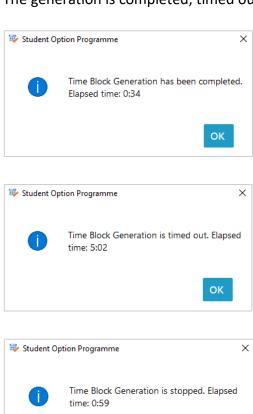


For the details of satisfaction rate calculation, please refer to Appendix II <u>Calculation of Satisfaction Rate.</u>

While generating time blocks, users can click "Stop Generating" button to stop time block generation.

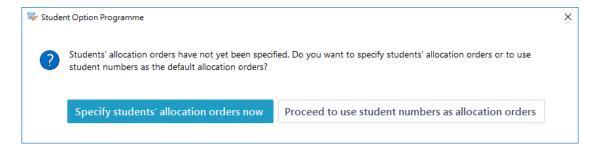


The generation is completed, timed out or stopped.



#### Reminder:

After clicking the "Generate Time Blocks" button, if students' allocation orders have not yet been defined, the below message will be displayed. Users can choose to specify the students' allocation orders, or proceed to use student numbers as allocation orders.





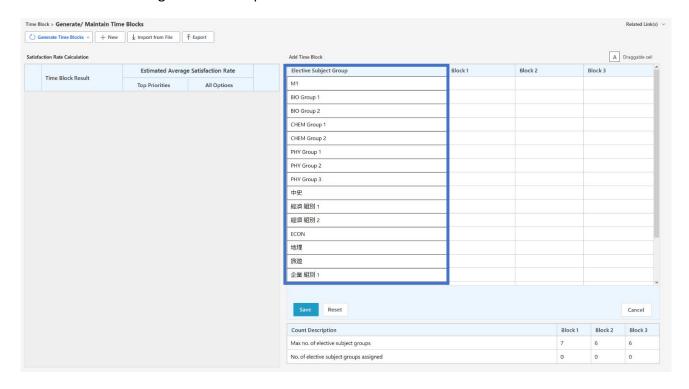
To define allocation orders, please refer to 7.1 Elective Subject Allocation Orders.

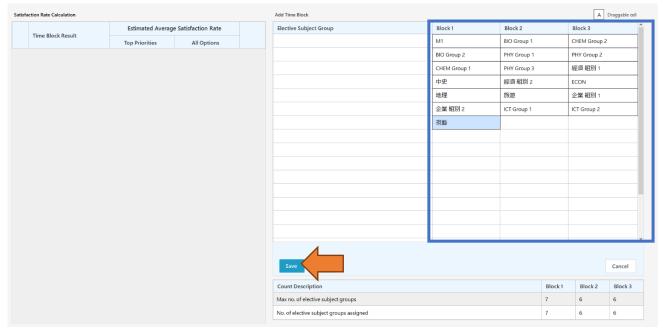
## 6.3.3 Create Customised Time Block

In the "Generate/Maintain Time Blocks" page, click "New" button.



Users can manually assign elective subject groups into each time block by drag and drop. Click "Save" button when the assignment is completed.

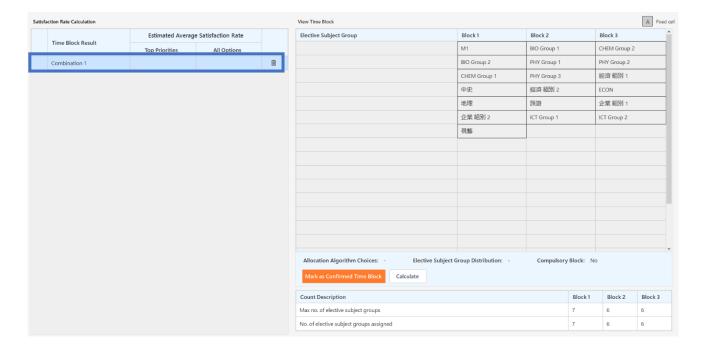




#### A new record is added.

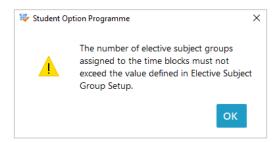


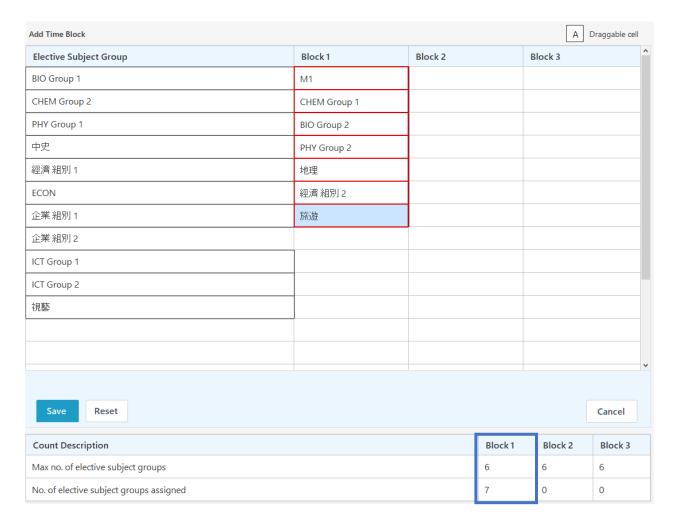
The new record will be displayed in the time block list.



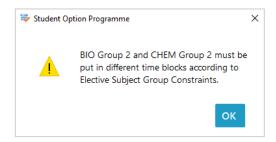
#### Validation:

1. If the number of manually assigned elective subject groups in any time block exceeds the maximum number of elective subject groups defined for that time block, the related time block will be displayed in red border. The below message will be displayed and the record cannot be saved.





2. If users assign the elective subject groups that violate any elective subject group constraints, the below warning message will be displayed and the related subject groups will be highlighted in red border.



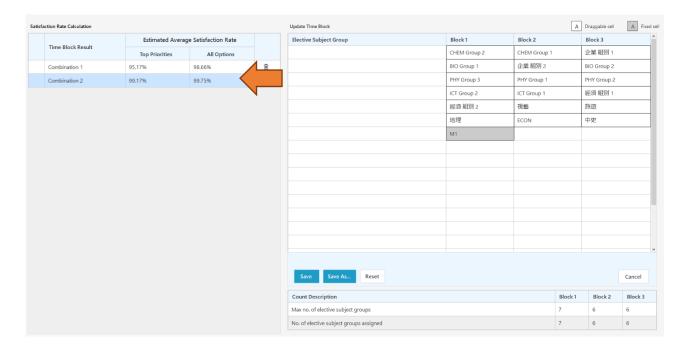




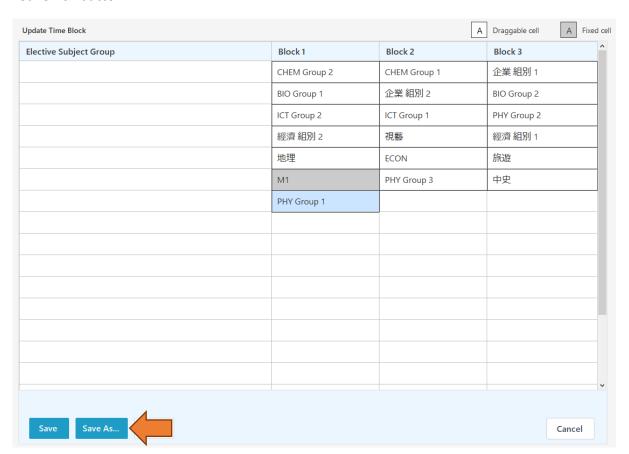
To manually assign elective subject group in a time block in one go, please refer to 6.3.5 <a href="Import Time Blocks">Import Time Blocks</a>.

# 6.3.4 Update Generated/Created Time Blocks

Double click a time block record in the table. The selected time blocks record will be displayed on the action area on the right-hand side.



Rearrange the elective subject groups among the time blocks by drag and drop and click "Save" or "Save As" button.



The selected record is updated. Satisfaction rate will be cleared.

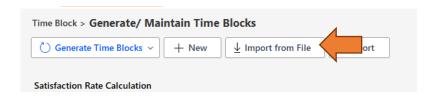




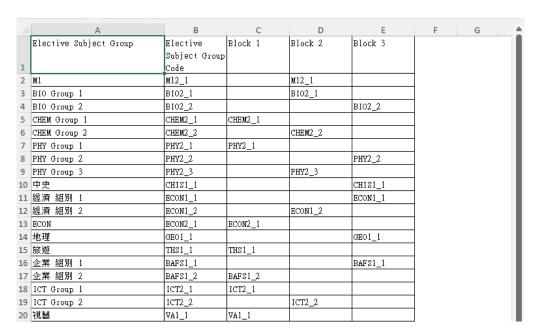
To calculate the estimated satisfaction rate of the updated time block record, please refer to 6.3.7 <u>Calculate Estimated Satisfaction Rate</u>

## 6.3.5 Import Time Blocks

Users can import data via Excel or CSV file. Click "Import from File" button.



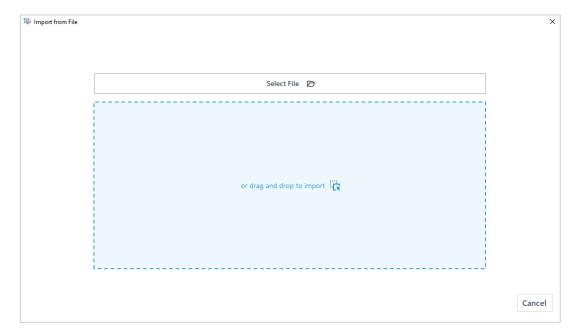
Below shows a sample Excel file.



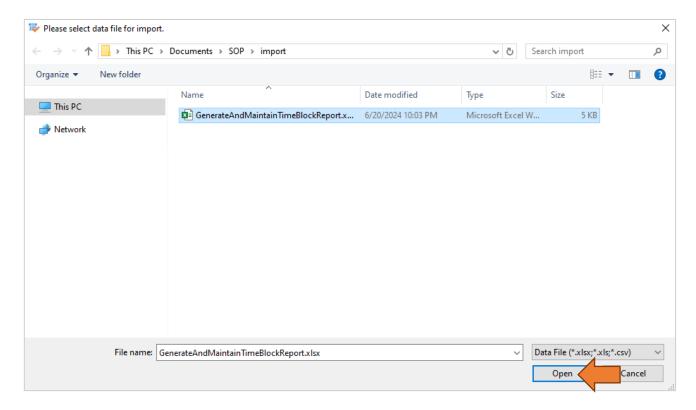


To obtain file template for import, please refer to 6.3.6 Export Time Blocks.

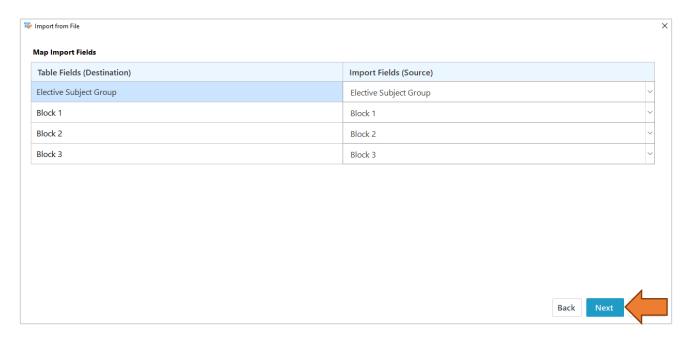
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



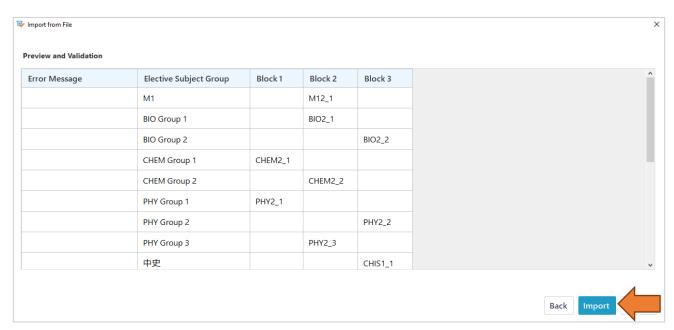
Select the file for import and click "Open" button.



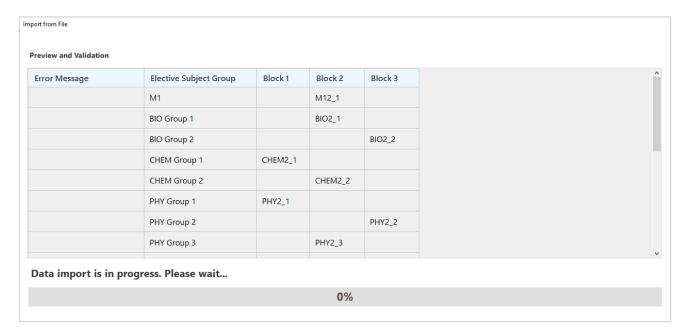
The system will map the import fields automatically based on the column titles in the import file. Users can also select the import fields manually. Click "Next" button when all the fields are mapped to start the data validation.



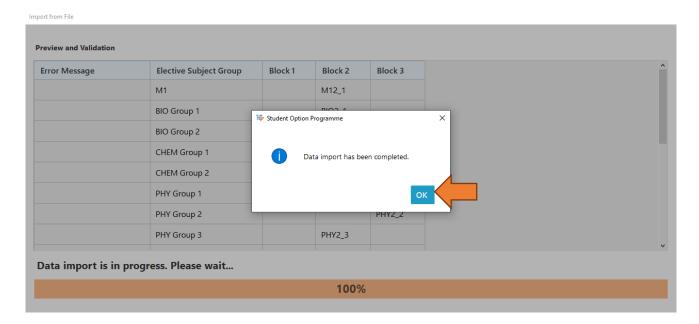
If the data is invalid, warning message(s) will be displayed under "Error Message" column. If no error is encountered, click "Import" button.



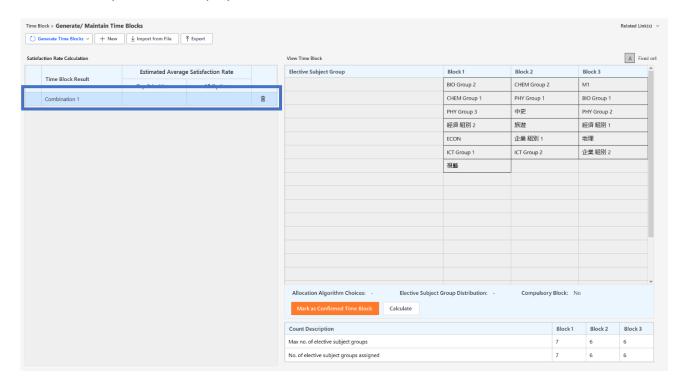
A progress bar will be displayed to show the import progress.



Click "OK" button to close the completion prompt box.



The data is imported and displayed in the time block list.

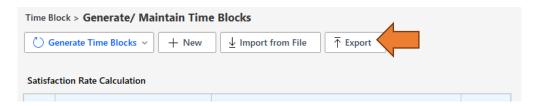




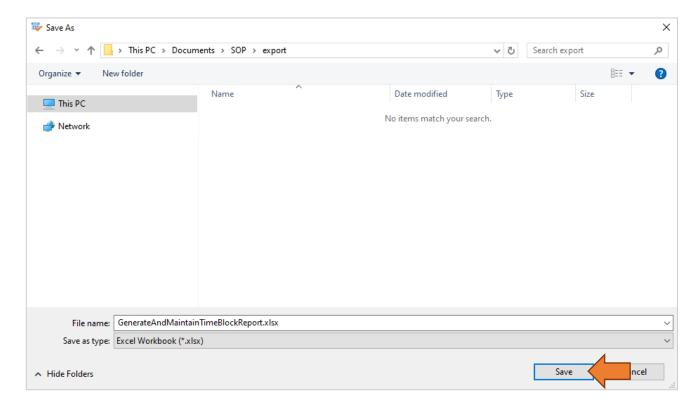
To calculate the estimated satisfaction rate of the imported time block record, please refer to 6.3.7 <u>Calculate Estimated Satisfaction Rate</u>

# 6.3.6 Export Time Blocks

In the "Generate/Maintain Time Blocks" page, click "Export" button.



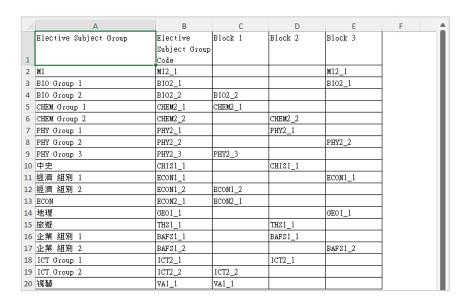
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.

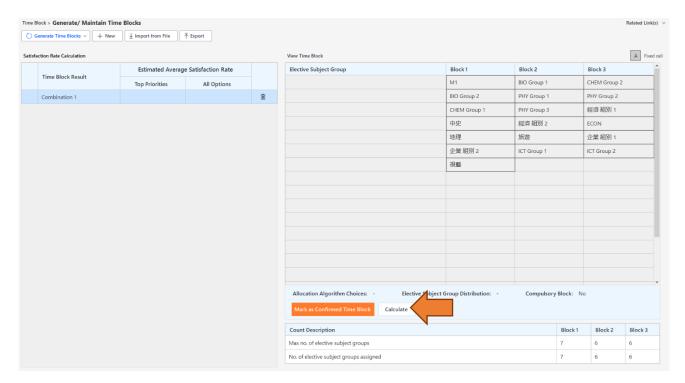


## Below shows a sample exported file.



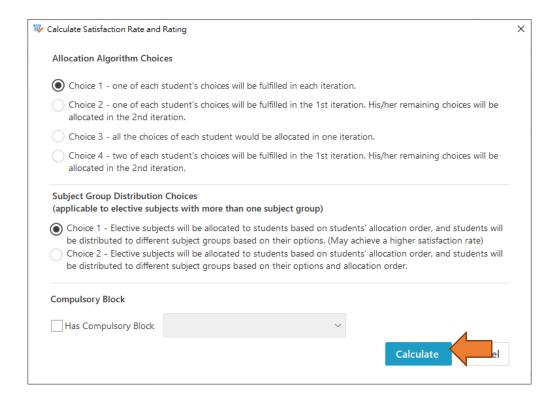
## 6.3.7 Calculate Estimated Satisfaction Rate of Time Block

Select the time block record, click "Calculate" button to calculate the estimated satisfaction rate.



Select the appropriate option for "Allocation Algorithm Choices" (applicable to elective subject allocation by overall ranking) and "Subject Group Distribution Choices" (applicable to elective subjects with multiple subject groups). Check the "Has Compulsory Block" checkbox and select the compulsory time block(s) if needed.

Click "Calculate" button to start the calculation of estimated satisfaction rate.

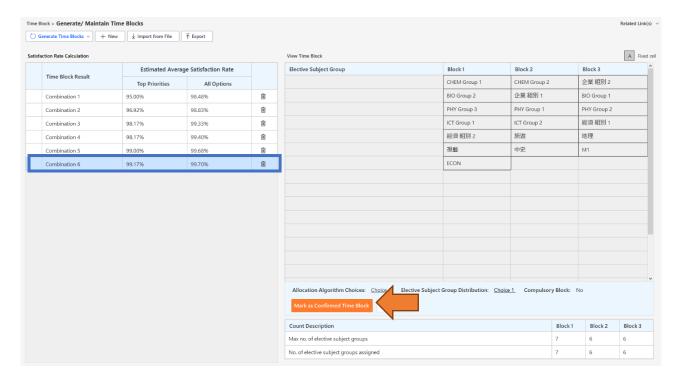




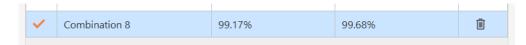
For details about the satisfaction rate calculation, please refer to Appendix II <u>Calculation of Satisfaction Rate</u>.

## 6.3.8 Mark and Unmark as Confirmed Time Block

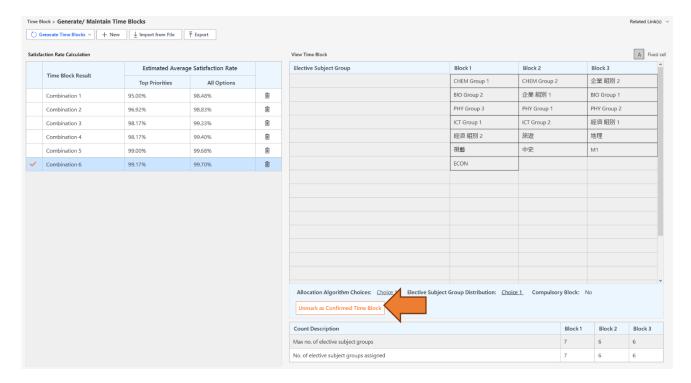
In the "Generate/Maintain Time Blocks" page, select the time blocks record to be used for elective subject allocation. Then, click "Mark as Confirmed Time Block" button.



A tick icon will be displayed next to the confirmed time block.



To unmark the time block as confirmed, click the confirmed time blocks record in the time block list. Click "Unmark as Confirmed Time Block" button.



# 7. Elective Subject Allocation

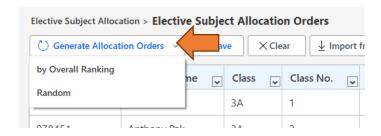
# 7.1 Elective Subject Allocation Orders

Click Main Menu (Elective Subject Allocation  $\rightarrow$  Elective Subject Allocation Orders) to browse the elective subject allocation orders of students.

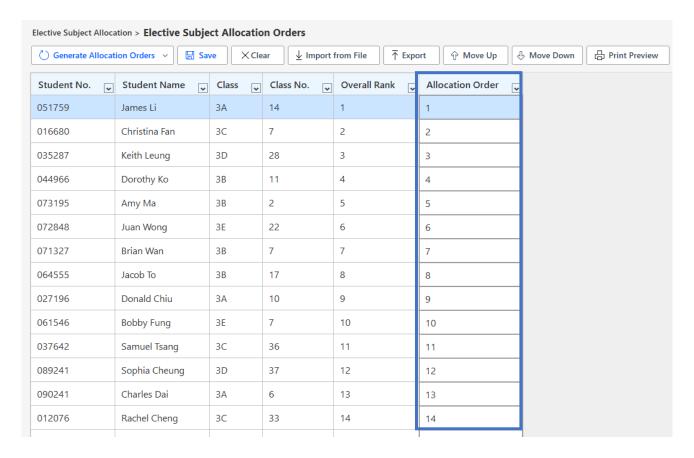


# 7.1.1 Generate Elective Subject Allocation Orders (Applicable to "by Overall Ranking" only)

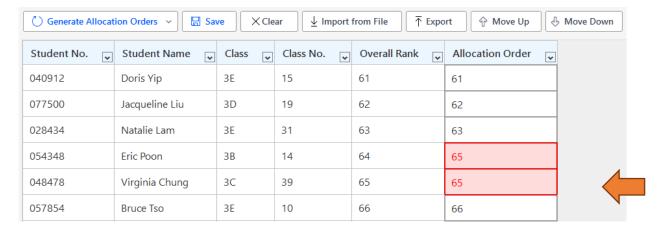
In the "Elective Subject Allocation Orders" page, click "Generate Allocation Orders" button, and select "by Overall Ranking" or "Random".



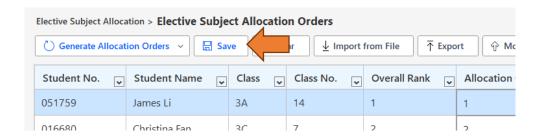
The allocation orders will be generated to the students according to their overall rank or randomly.



If the allocation orders are generated by overall rank, duplicated allocation orders will be highlighted in red. Users can update the allocation orders manually or adjust the allocation orders of a student by clicking a row with the use of the "Move Up" or "Move Down" button.



After revising the allocation orders (if needed), click "Save" button to save this generated or revised orders.



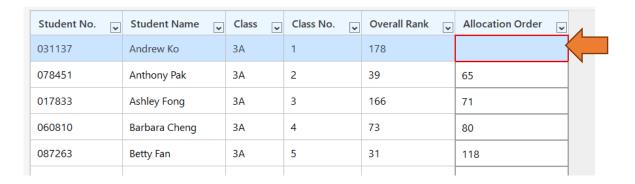
#### The changes are saved.



#### Validation:

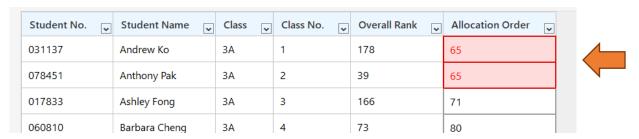
1. If any allocation order field is not filled in, the system will prompt a warning message and highlight the field in red.





2. If allocation order is duplicated, related record will be displayed in red. Users are not allowed to save the record.





# 7.1.2 Generate Elective Subject Allocation Orders (Applicable to "by Elective Subject Queue" only)

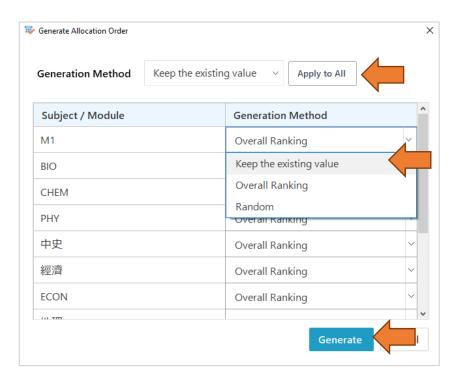
In the "Elective Subject Allocation Orders" page, click "Generate Allocation Orders" button.



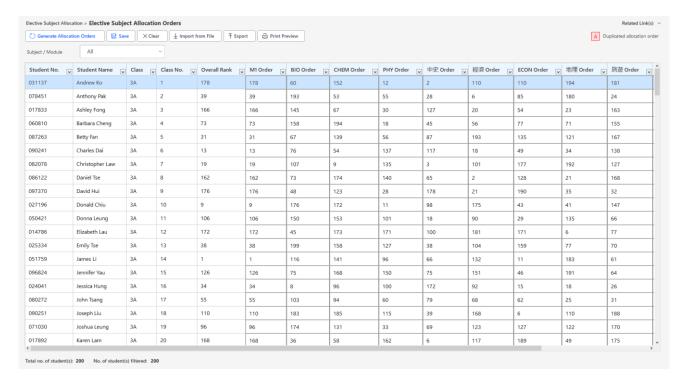
#### Users can select:

- Keep the existing value (the imported or manually updated value);
- Overall Ranking; or
- Random

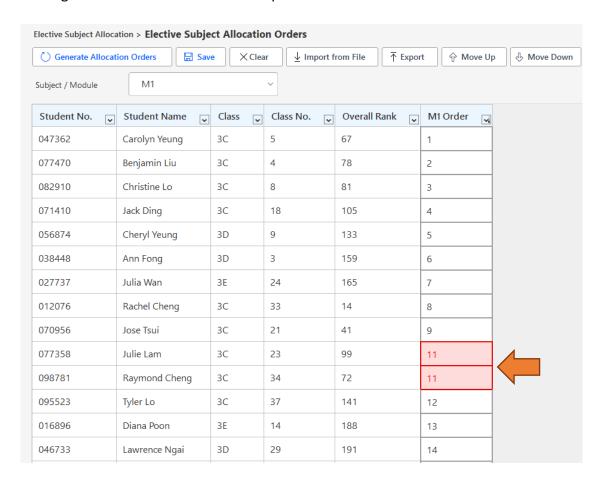
in "Generation Method" for individual subject/ module or click "Apply to All" button for all subjects/ modules, and click "Generate" button.



The allocation orders will be generated to the students accordingly.



Duplicated allocation orders will be highlighted in red. Users can update the allocation orders manually or adjust the allocation orders of a student when a particular subject/ module is filtered by clicking a row with the use of "Move Up" or "Move Down" button.



After revising the allocation orders (if needed), click "Save" button to save the generated or revised orders.



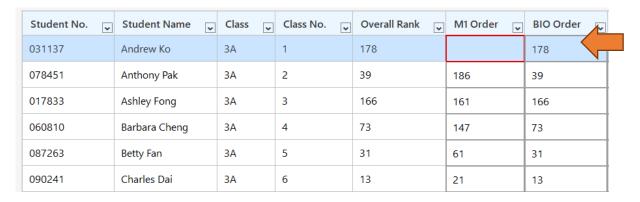
The changes are saved.



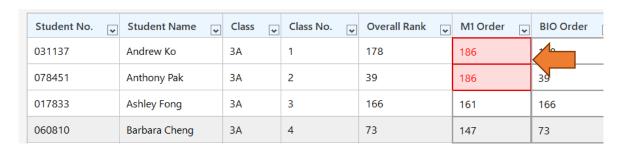
### Validation:

1. If any allocation order fields of the subject(s) / module (s) shown is not filled in, the system will prompt a warning message and highlight the field in red.





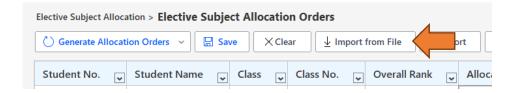
2. If allocation order of a subject/ module shown is duplicated, related record will be displayed in red. Users are not allowed to save the record.



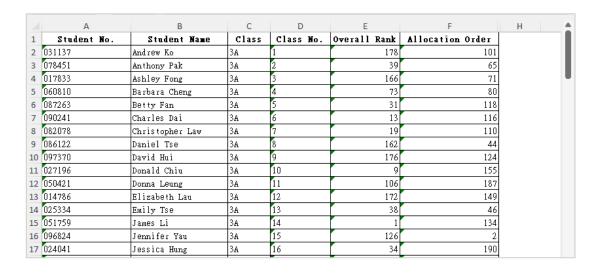


## 7.1.3 Import Elective Subject Allocation Orders

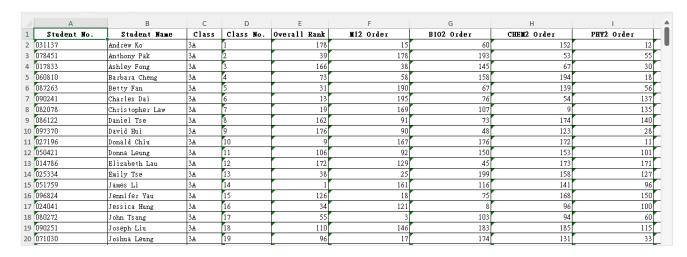
Users can import data via Excel or CSV file. Click "Import from File" button.



Below are the sample Excel files.



(For elective subject allocation by overall ranking)

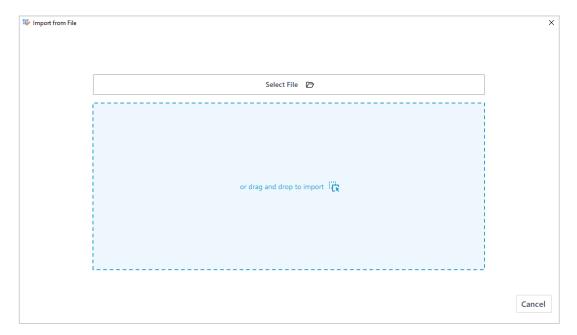


(For elective subject allocation by elective subject queue)

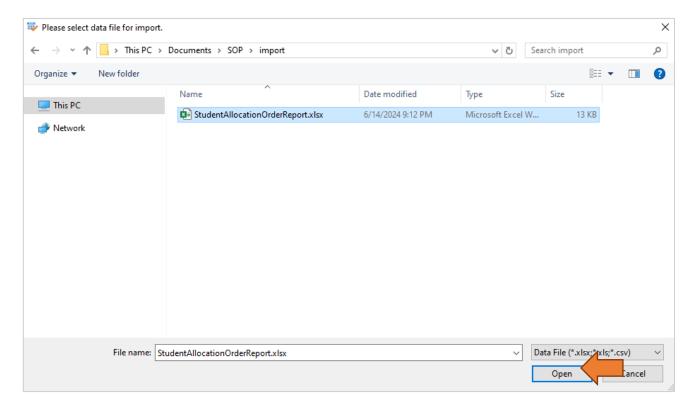


To obtain a file template for import, please refer to 7.1.4 Export Elective Subject Allocation Orders.

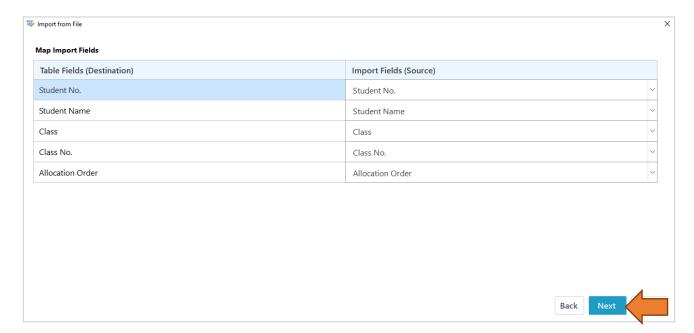
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



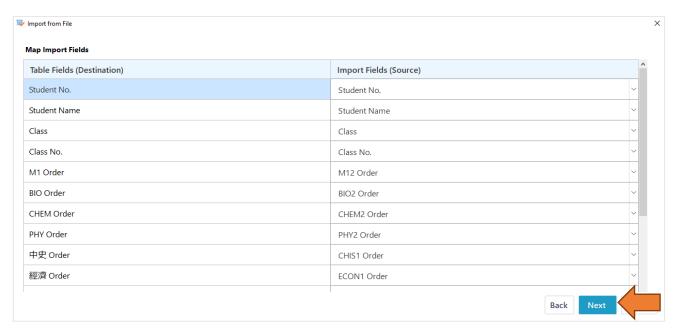
Select the file for import and click "Open" button.



The system will map the import fields automatically based on the column titles in the import file. Users can also select the import fields manually. Click "Next" button when all the fields are mapped to start the data validation.



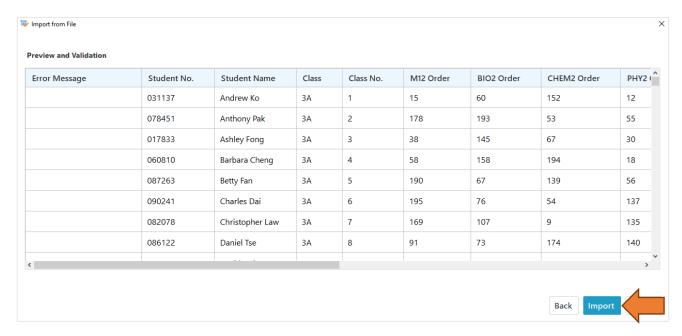
## For elective subject allocation by overall ranking)



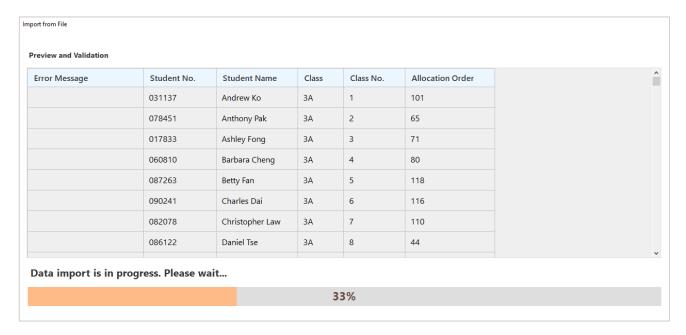
If the data is invalid, warning message(s) will be displayed under "Error Message" column. If no error is encountered, click "Import" button.



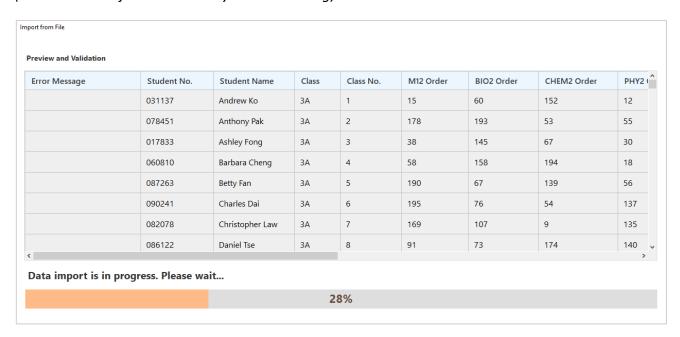
## (For elective subject allocation by overall ranking)



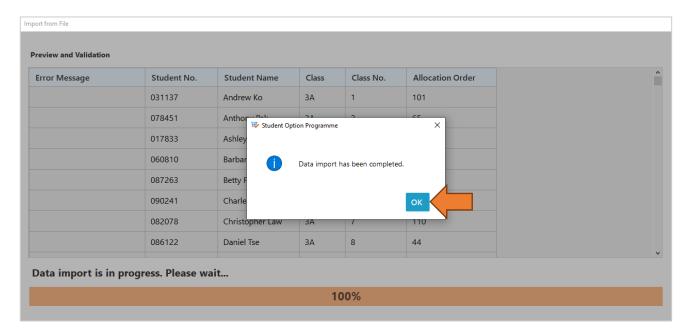
A progress bar will be displayed to show the import progress.



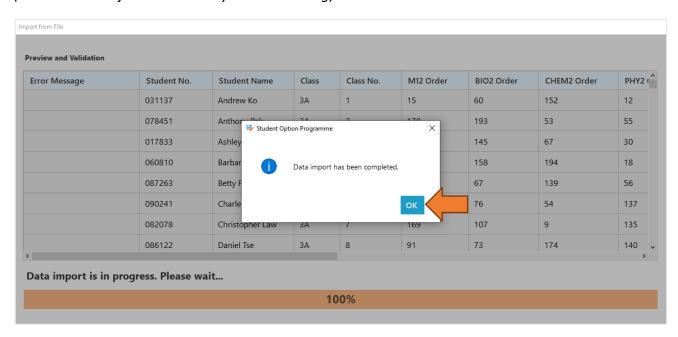
## (For elective subject allocation by overall ranking)



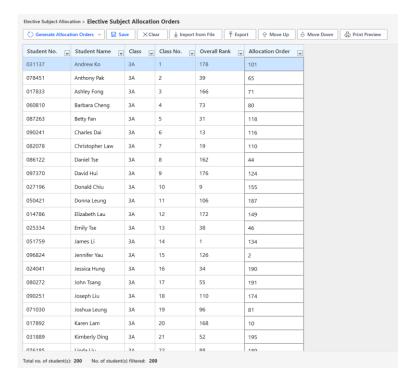
Click "OK" button to close the completion prompt box.



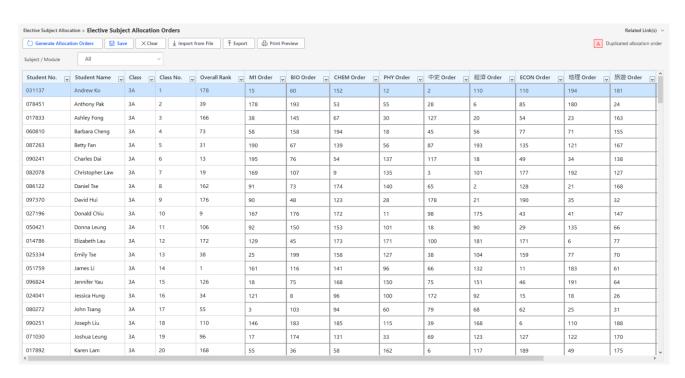
(For elective subject allocation by overall ranking)



The data is imported and is displayed in the elective subject allocation orders list.



(For elective subject allocation by overall ranking)



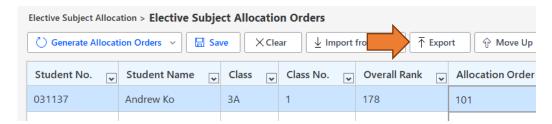
(For elective subject allocation by elective subject queue)

After completing the import of elective subject allocation orders:

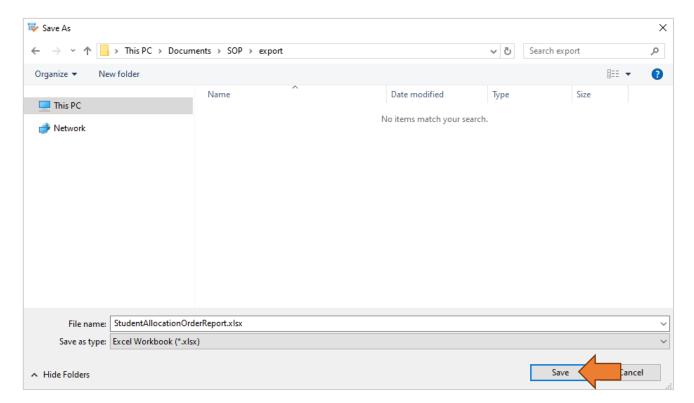
- allocation orders of existing students will be updated by the data in the import file
- any updates will be synchronized to Allocate Elective Subjects page

## 7.1.4 Export Elective Subject Allocation Orders

In the "Elective Subject Allocation Orders" screen, click the "Export" button.



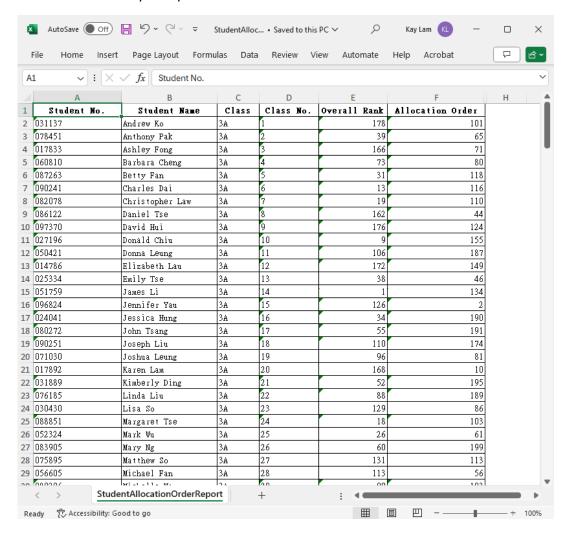
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



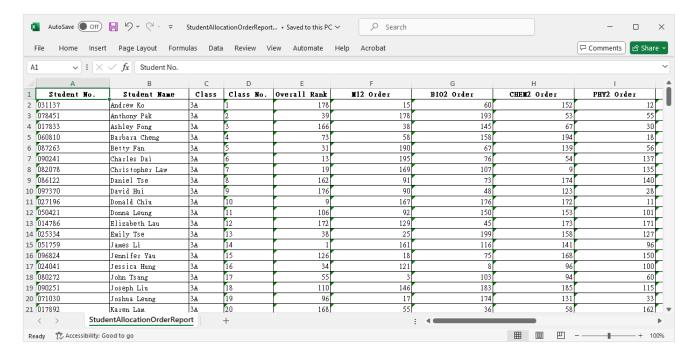
The file export is completed.



Below are the sample exported files.

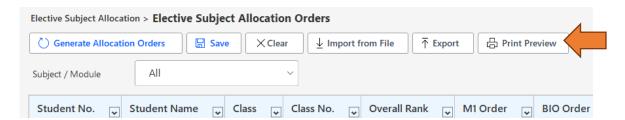


(For elective subject allocation by overall ranking)

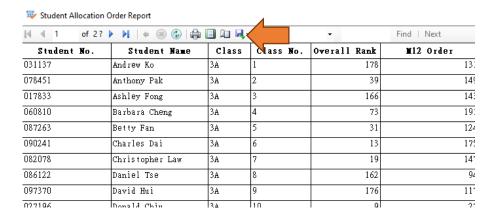


# 7.1.5 Print Preview of Elective Subject Allocation Orders

In the "Allocate Elective Subjects" page, click "Print Preview" button.



Click the "Print" button to print the list of allocation orders.



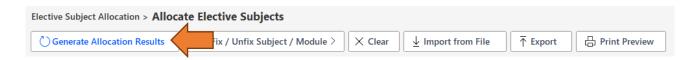
## 7.2 Allocate Elective Subjects

Click Main Menu (Elective Subject Allocation  $\rightarrow$  Allocate Elective Subjects) to allocate elective subjects to students.



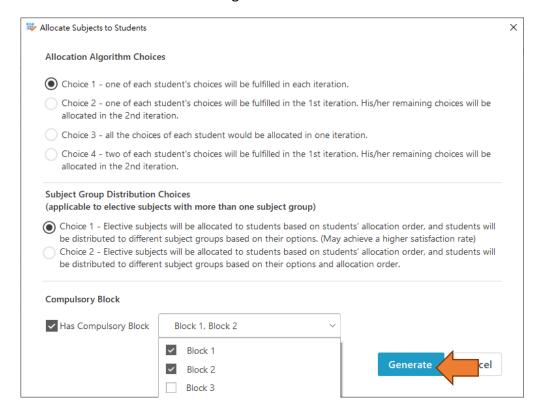
## 7.2.1 Generate Elective Subject Allocation Results

In the "Allocate Elective Subjects" page, click "Generate Allocation Results" button.

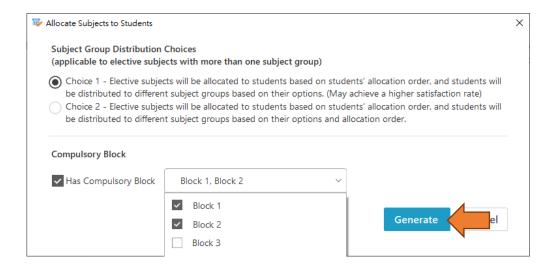


Select the appropriate option for "Allocation Algorithm Choices" (applicable to elective subject allocation by overall ranking) and "Subject Group Distribution Choices" (applicable to elective subjects with multiple subject group). Check the "Has Compulsory Block" checkbox and select the compulsory time block(s) in the dropdown menu if needed.

Click "Generate" button to start generation.



(For elective subject allocation by overall ranking)

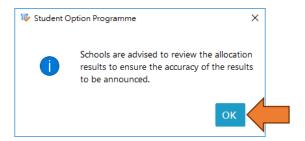


(For elective subject allocation by elective subject queue)

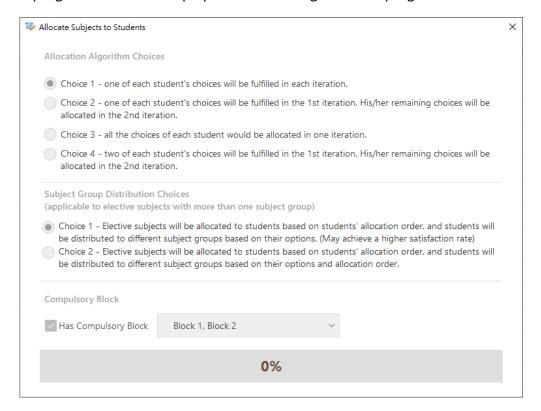


For details about the Allocation Algorithm Choices and Subject Group Distribution Choices, please refer to Appendix III <u>Allocation Algorithm Choices (Overall Ranking)</u>, Appendix IV <u>Allocation Algorithm (Elective Subject Queue)</u> and Appendix V <u>Subject Group Distribution</u> Choices.

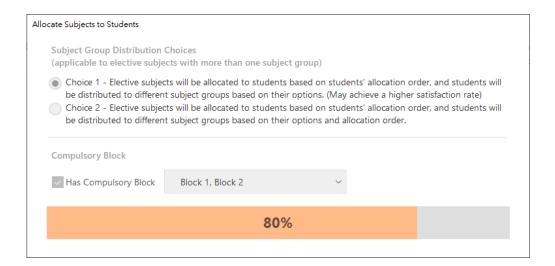
#### Click "OK" button to start allocation.



#### A progress bar will be displayed to show the generation progress.

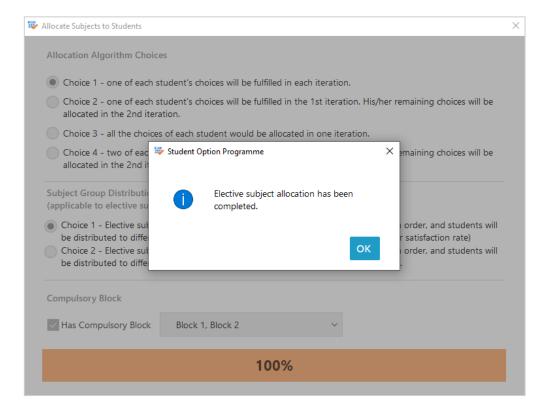


#### (For elective subject allocation by overall ranking)

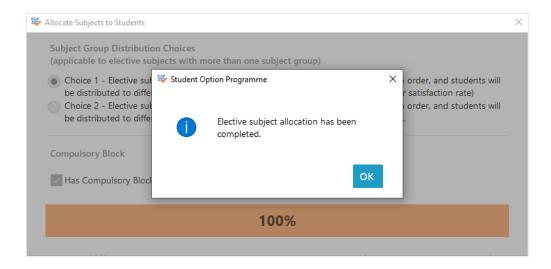


(For elective subject allocation by elective subject queue)

#### Elective subject allocation is completed.

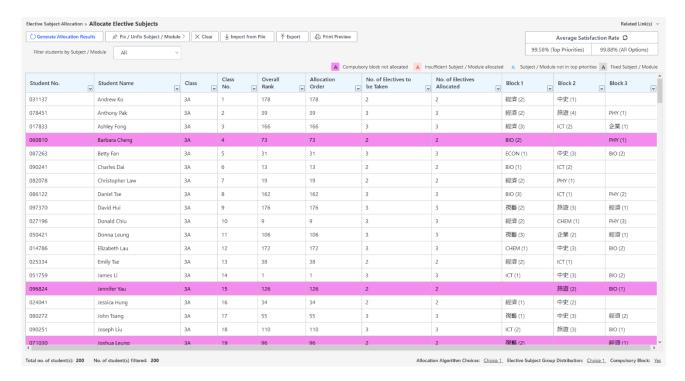


## (For elective subject allocation by overall ranking)



(For elective subject allocation by elective subject queue)

Students who are not allocated with elective subject(s) in compulsory time block(s) (if selected) will be highlighted in color.



User can mouseover the bottom right corner on "Compulsory Block" to check the defined compulsory time block(s).



#### Remarks:

The programme will try to search for improvement on the allocation results if schools offer elective subject(s) with multiple subject groups and select Choice 1 for Subject Group Distribution Choices. An extra window will be displayed before the allocation is completed.

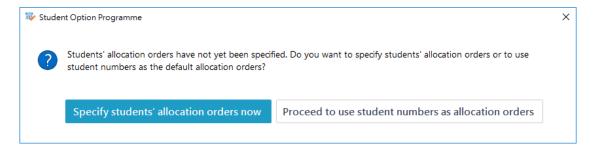




For details about the improvement on allocation results, please refer to Appendix VI\_Backtracking Function.

#### Reminder:

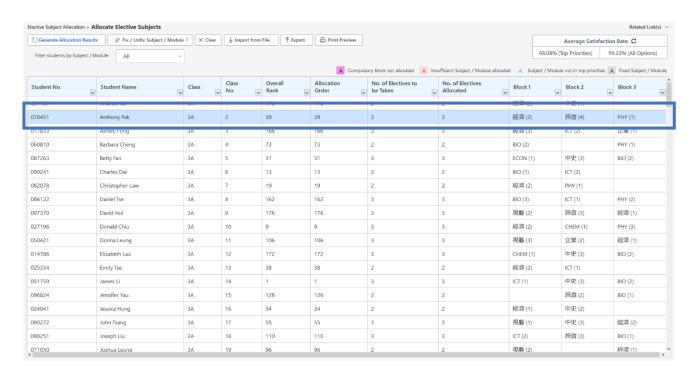
After clicking the "Generate Allocation Results" button, if students' allocation orders have not yet been defined, the below message will be displayed. Users can choose to specify the students' allocation orders, or proceed to use student numbers as allocation orders.



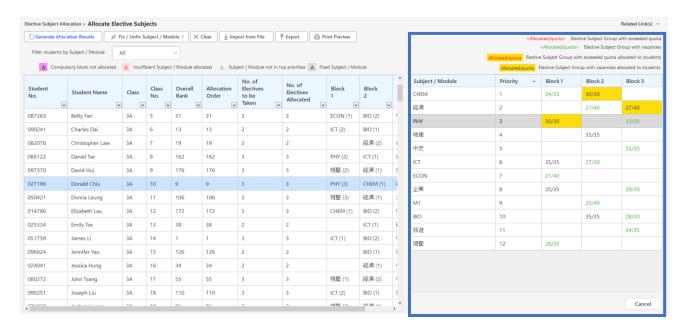


To define allocation orders, please refer to 7.1 Elective Subject Allocation Orders.

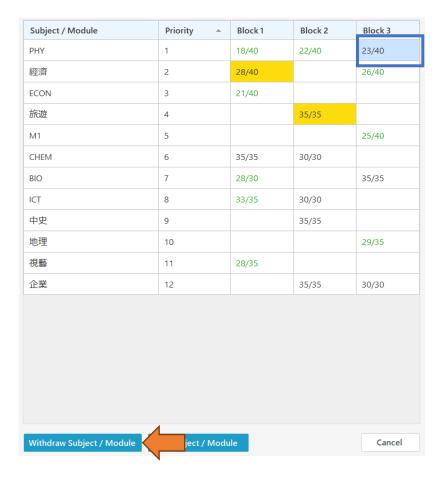
# 7.2.2 Manually Allocate / Withdraw and Fix / Unfix Elective Subject Group In the "Allocate Elective Subjects" page, double click a student record.



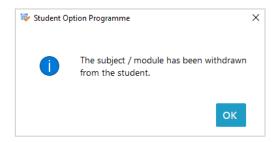
Student's Preference screen will be displayed on the right-hand side. The Students' Preference screen shows the time blocks with all the subjects/ modules and the priority of the subjects/ modules of the student. The elective subjects allocated to the student will be highlighted in yellow and the row of fixed subject/ module will be highlighted in grey.



To withdraw an allocated elective subject, click the allocated subject/ module and click "Withdraw Subject / Module" button.



## Withdrawal is completed.



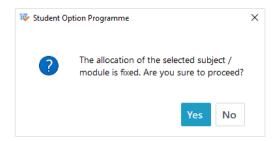
The yellow highlight will be removed from the withdrawn subject / module. The number of allocations of the withdrawn subject/ module will be deducted by 1.



If selected subject/ module to be withdrawn is fixed, users click "Withdraw Subject / Module" button, a confirmation message will be displayed.



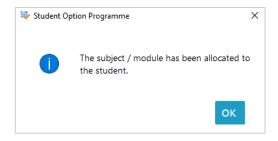
Click "Yes", the programme will proceed to withdraw and unfix the selected subject/ module.



To allocate an elective subject, choose another subject/ module under the time block in which no subject/ module has been allocated to the student and then click "Allocate Subject / Module" button.



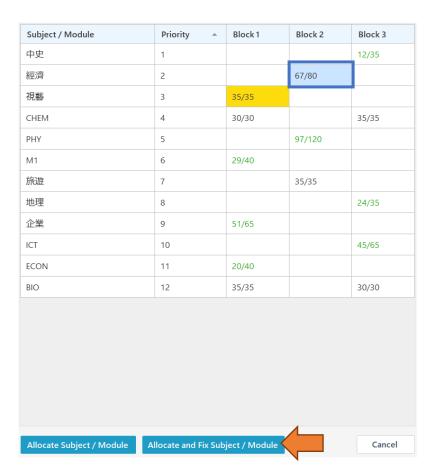
## Elective subject allocation is completed.



The allocated subject is highlighted in yellow. The number of allocations of the subject/ module is increased by 1.

Subject / Module	Priority _	Block 1	Block 2	Block 3
PHY	1	18/40	22/40	22/40
經濟	2	28/40		26/40
ECON	3	21/40		
旅遊	4		35/35	
M1	5			26/40
CHEM	6	35/35	30/30	
BIO	7	28/30		35/35
ICT	8	33/35	30/30	
中史	9		35/35	
地理	10			29/35
視藝	11	28/35		
企業	12		35/35	30/30
				Cancel

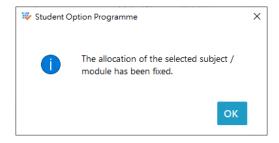
While allocating the subject/ module, users can click the "Allocate and Fix Subject / Module" button. The selected subject/ module will be allocated and fixed simultaneously.



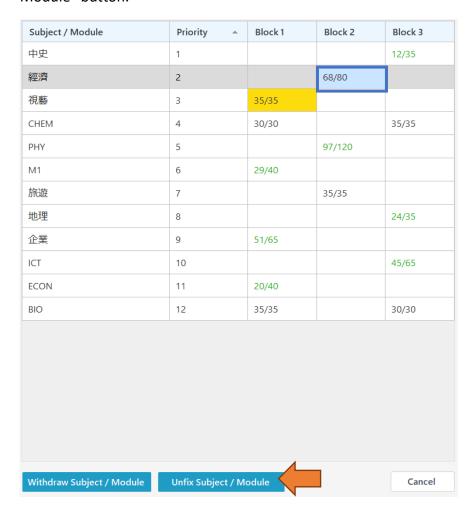
To fix an allocated elective subject, click the allocated subject/ module and click "Fix Subject / Module" button.



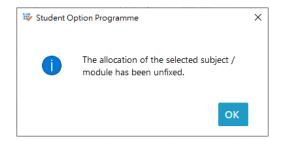
The subject/ module allocated to the student is fixed.



To unfix an allocated elective subject, click the fixed subject/ module and click "Unfix Subject / Module" button.



The subject/ module allocated to the student is unfixed.



#### Remarks:

Manual allocation can be done before or after performing "Generate Allocation Results" by the system. However, if manual allocation is made before the system's allocation, the system may override the manual allocation when backtracking function has taken place unless the allocated subject/ module is fixed.

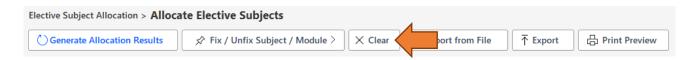


To update the elective subject allocation results in one go, please refer to 7.2.4 <u>Import Elective Subjects Allocation Results</u>.

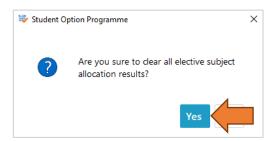
To fix / unfix allocated subjects / module by batch, please refer to 7.3.2 Fix / Unfix Multiple Allocated Subjects / Modules.

## 7.2.3 Clear Elective Subjects Allocation Results

In the "Allocate Elective Subjects" page, click "Clear" button.



Click "Yes" button to clear the allocation results.



The clearing process is completed.

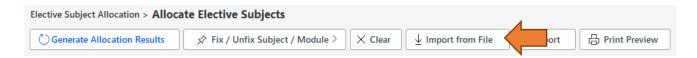


#### Remarks:

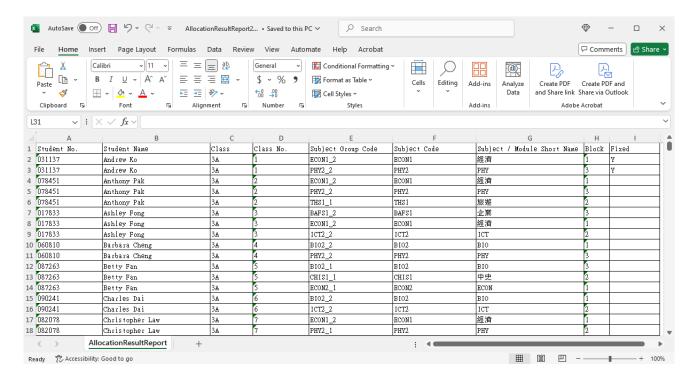
Clearing allocation result will not affect the subject/ module that is fixed.

## 7.2.4 Import Elective Subjects Allocation Results

In the "Allocate Elective Subjects" page, click "Import from File" button.



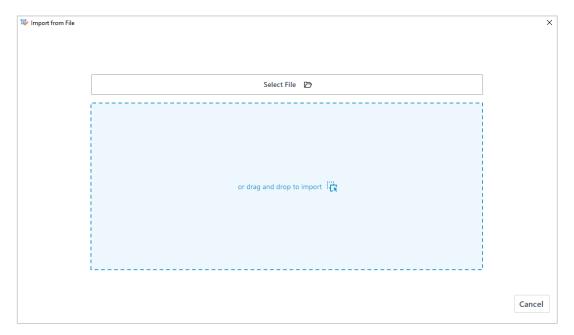
Below shows a sample Excel file.



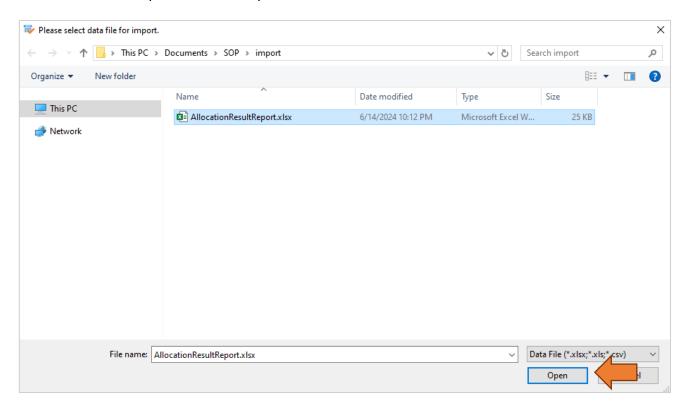


To obtain a file template for import, please refer to 7.2.5 <u>Export Elective Subjects Allocation</u>
<u>Results.</u>

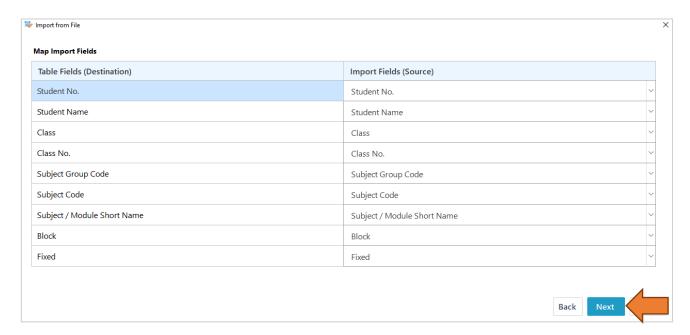
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



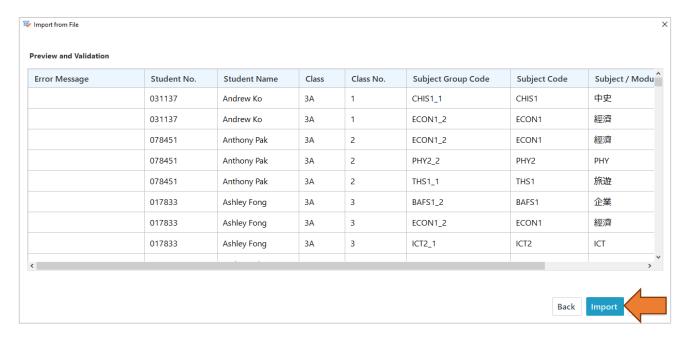
Select the file for import and click "Open" button.



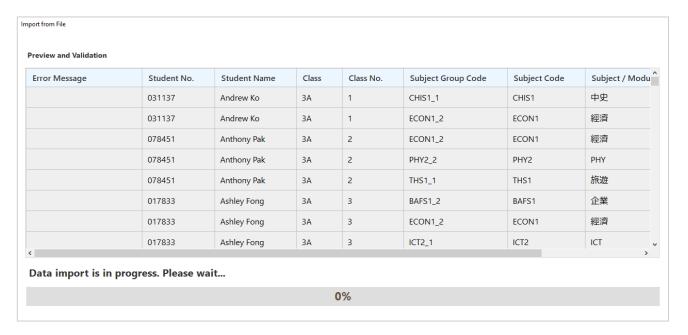
The system will map the import fields automatically based on the column titles in the import file. Users can also select the import fields manually. Click "Next" button when all the fields are mapped to start the data validation.



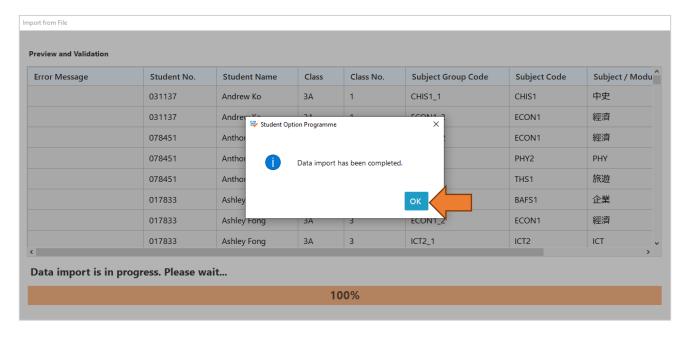
If the data is invalid, warning message(s) will be displayed under "Error Message" column. If no error is encountered, click "Import" button.



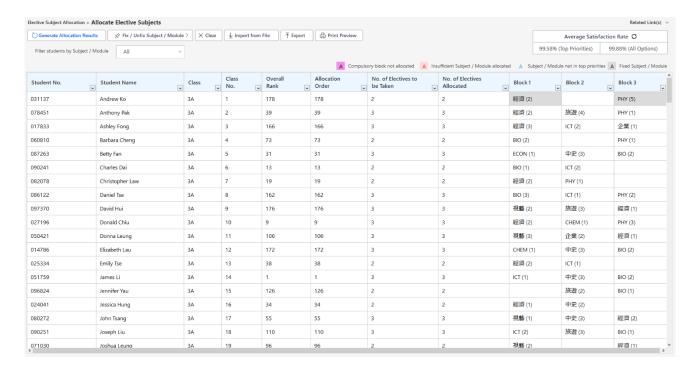
A progress bar will be displayed to show the import progress.



## Click "OK" button to close the completion prompt box.



The data is imported and is displayed in the student list. For allocation record filled with "Y" under "Fixed" column, related elective subject group allocated to the student will be fixed.

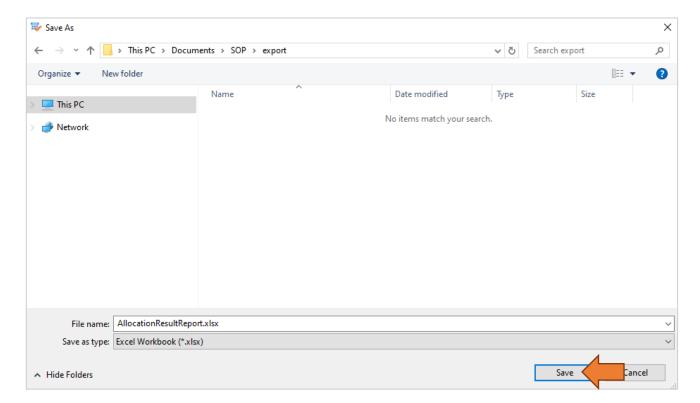


# 7.2.5 Export Elective Subjects Allocation Results

In the "Allocate Elective Subjects" page, click "Export" button.



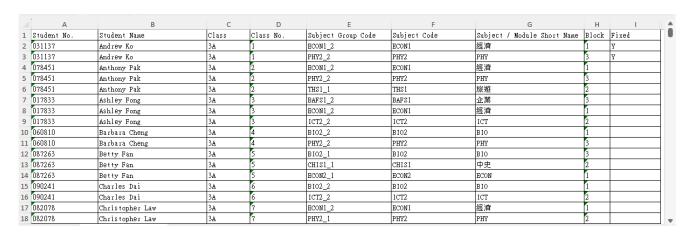
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.

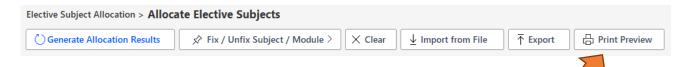


## Below shows a sample exported file.

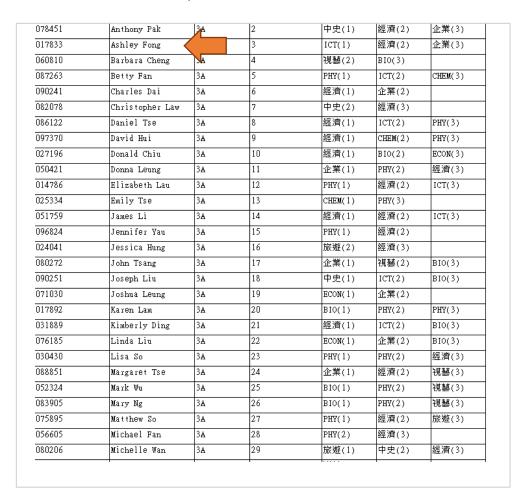


## 7.2.6 Print Preview of Elective Subject Allocation Results

In the "Allocate Elective Subjects" page, click "Print Preview" button.

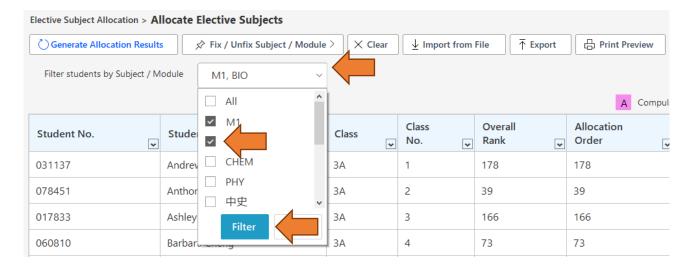


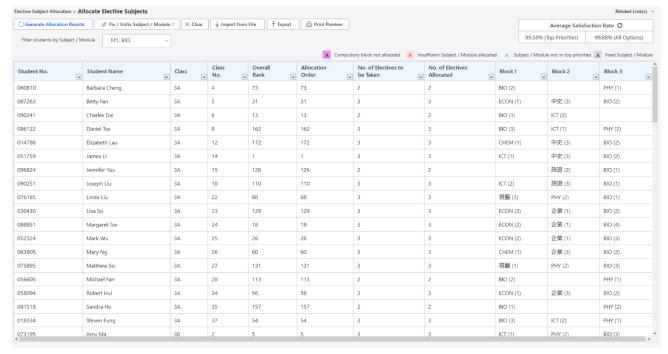
# Click the "Print" button to print the allocation results.



# 7.2.7 Filter Student Records by Allocated Subject/ Module

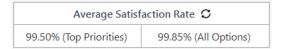
In the "Allocate Elective Subjects" page, click "Subject / Module" dropdown field. Select any subject(s) / module (s), and click "Filter" button. The student list will be filtered by the selected elective subjects.





## 7.2.8 Satisfaction Rate of Elective Subject Allocation Results

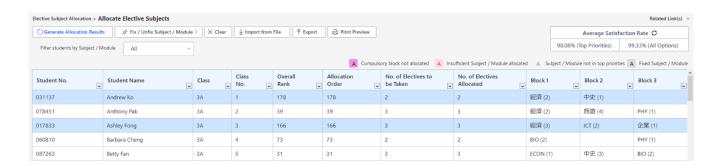
After completing generation of allocation results, the average satisfaction rate will be shown at the top right corner of the page for reference. Users can click the refresh (  $\mathfrak{S}$  icon to re-calculate the average satisfaction rate after performing manual allocation.



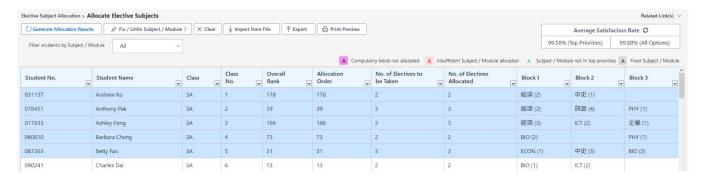


For details about the satisfaction rate calculation, please refer to Appendix II <u>Calculation of Satisfaction Rate</u>.

7.2.9 Using Different Allocation Choices for Different Students (Overall Ranking)
Press Ctrl (Keyboard) and left click to select a number of student records for generating allocation results.



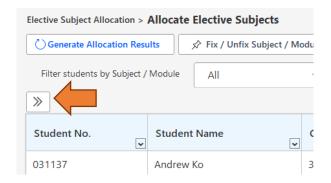
Press Shift (Keyboard) and left click on the first and the last student record to select consecutive student records for generating allocation results.



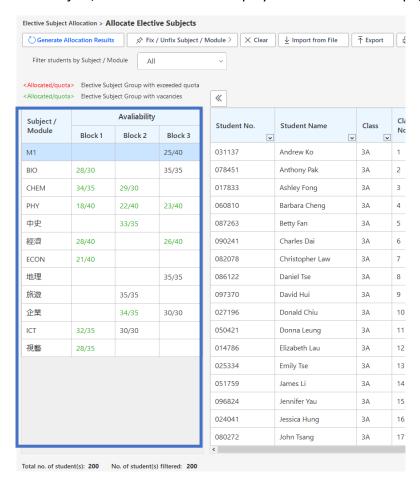
Click "Generate Allocation Results" button. Programme will only generate allocation result to the selected students, other students will not be considered. Users can use different allocation algorithm choices to generate allocation results for different students.

# 7.2.10 Partial Allocation of Subjects/ Modules (Elective Subject Queue)

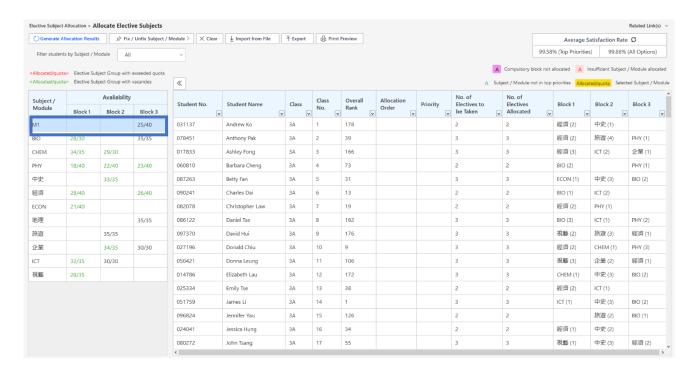
Click the expand button to show the subject/ module list.



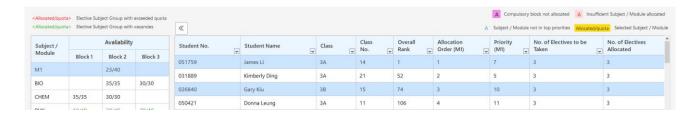
The subject/ module list will be displayed on the left of the page.



Click any subject/ module on the subject/ module list. Student list on the right will be sorted by the allocation order of the selected subject/ module.



Press Ctrl (Keyboard) and left click to select a number of student records for generating allocation results.

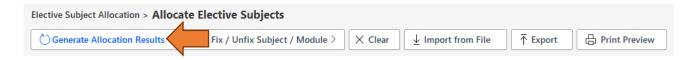


Press Shift (Keyboard) and left click on the first and the last student record to select consecutive student records for generating allocation results.

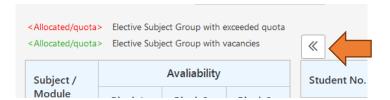


Ctrl (Keyboard) and Shift (Keyboard) and left click on the subject/ module list can also be used to select particular subject(s)/ module(s) for allocation.

Click "Generate Allocation Results" button. Programme will only generate allocation result of the selected subject(s)/ module(s) to the selected students while other students will not be considered.



Click the collapse button to hide the subject/ module list.



Users can fix the allocation results of elective subject queue and switch to use overall ranking for the rest of allocation.



To fix / unfix allocated subjects/ modules by batch, please refer to 7.3.2 Fix / Unfix Multiple Allocated Subjects/ Modules.

To change the method of elective subject allocation, please refer to 2.5 <a href="System Settings">System Settings</a>.

# 7.3 Fix / Unfix Allocated Subjects/ Modules

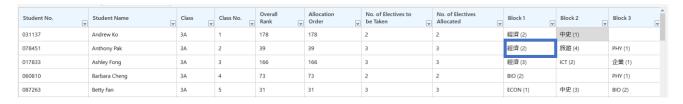
In the "Allocate Elective Subjects" page, click "Fix / Unfix Subject / Module" button.



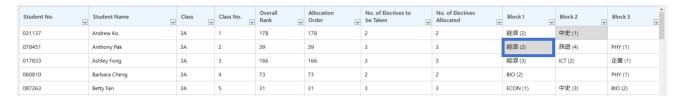
# 7.3.1 Fix / Unfix an Individual Subject/ Module

In the "Fix / Unfix Subject / Module" page, users can double click on an individual cell of subject/module under the time block columns to fix/unfix it.

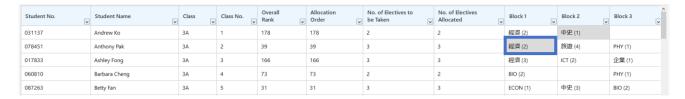
Double click an unhighlighted cell to fix the subject/ module.



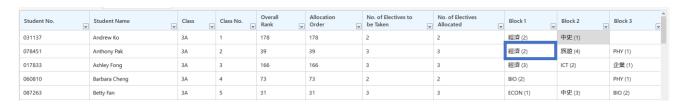
The cell will be highlighted in grey and the subject/ module is fixed.



Double click any highlighted cell to unfix the subject/ module.



The cell is unhighlighted and the subject/ module is unfixed.





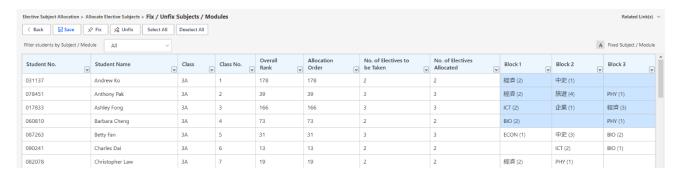
To allocate and fix a subject/ module at once, please refer to 7.2.2 <u>Manually Allocate /</u> Withdraw and Fix / Unfix Elective Subject Group.

## 7.3.2 Fix / Unfix Multiple Allocated Subjects/ Modules

In the "Fix / Unfix Subject / Module" page, users can select multiple subjects/ modules by the following ways:

- Press Ctrl (Keyboard) and left click the target cells to select a number of individual subjects/ modules
- Press Shift (Keyboard) and left click on the first and the last cells to select an area of subjects/ modules
- Left click on any cell and hold the left click to drag an area to select an area of subjects/ modules
- Click "Select All" button to select all allocated subjects/ modules

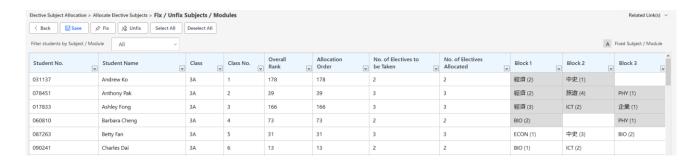
To fix/unfix allocated subjects/ modules, select the target cells under the time block columns.



Click "Fix"/ "Unfix" button to fix / unfix all the selected subjects/ modules.



All selected subjects/ modules are fixed/unfixed.

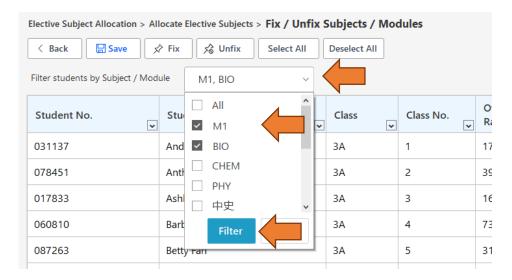


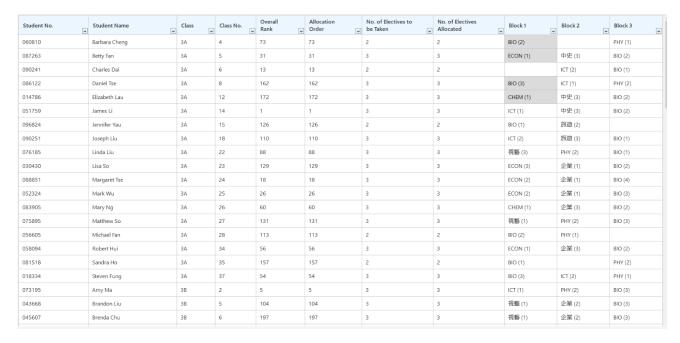


To update the elective subject allocation results with fixed subject(s)/ module(s) in one go, please refer to 7.2.4 Import Elective Subjects Allocation Results.

## 7.3.3 Fix / Unfix Filtered Subjects/ Modules

In the "Fix / Unfix Subjects / Modules" page, click "Filter students by Subject / Module" dropdown field. Select any subject(s) / module (s), and click "Filter" button. The student list will be filtered by the selected elective subjects.

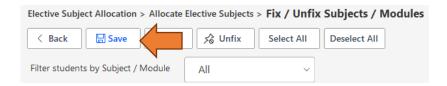






To fix / unfix filtered subjects/ modules, please refer to 7.3.1 Fix / Unfix an Individual Subject/ Module or 7.3.2 Fix / Unfix Multiple Allocated Subjects/ Modules.

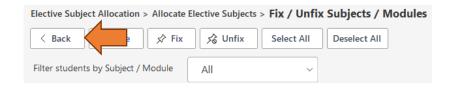
After fixing / unfixing allocated subject(s)/ module(s) is completed, click "Save" button.



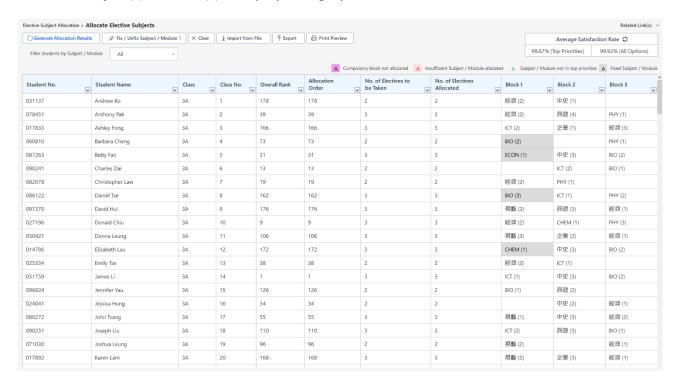
#### The changes are saved.



Click "Back" button, back to "Allocate Elective Subjects" page.



The fixed subject(s)/ module(s) is displayed in grey.



## 8. Print Timetables

This section shows how to perform the timetable printing function.



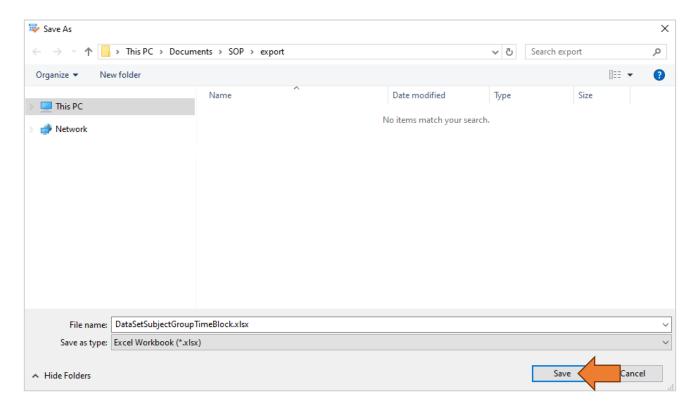
# 8.1 Export Time Block Result to CloudSAMS

Click Main Menu (Print Timetables) and click "Export Time Block Result to CloudSAMS" under "Print Timetables". This is an optional step if users are not using CloudSAMS.

Enter "School Year" and select "Class Level", and click "Export to Data File".



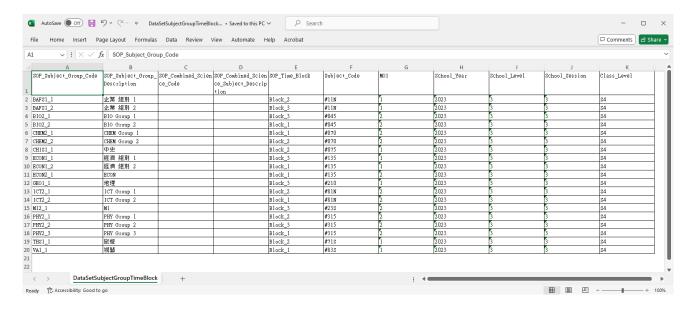
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



#### The file export is completed.



Below shows a sample exported file to be imported to CloudSAMS.



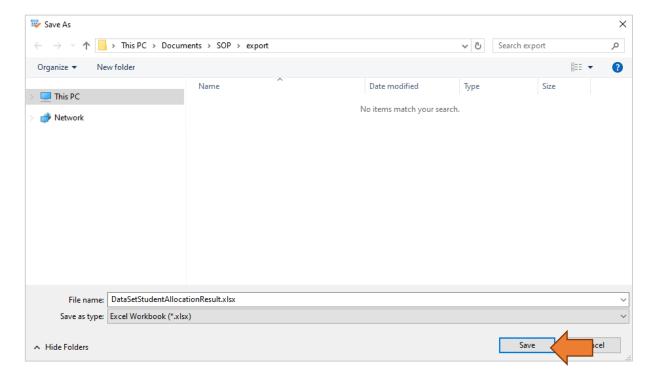
# 8.2 Export Allocation Results to CloudSAMS

Click Main Menu (Print Timetables) and click "Export Allocation Results to CloudSAMS" under "Print Timetables". This is an optional step if users are not using CloudSAMS.

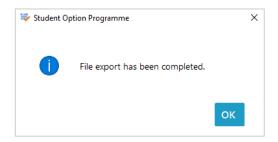
Enter "School Year" and select "Class Level", and click "Export to Data File".



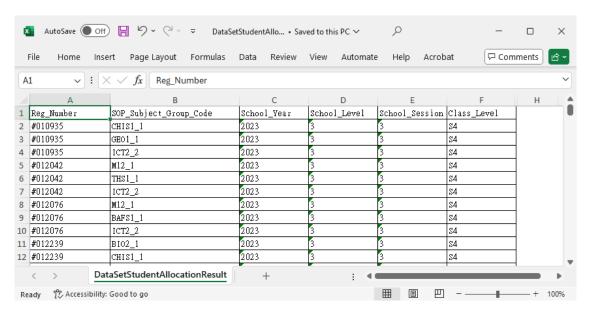
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



The file export is completed.



Below shows a sample exported file to be imported to CloudSAMS.

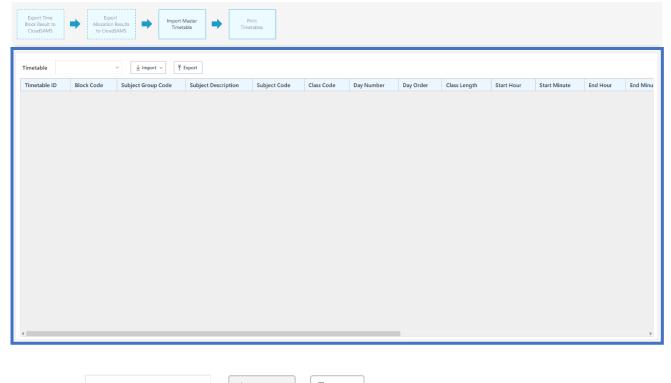


# 8.3 Import Master Timetable

Click Main Menu (Print Timetables) and click "Import Master Timetable" under "Print Timetables".

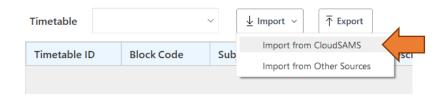


A preview table will be displayed. Click "Import" button, and select "Import from CloudSAMS" or "Import from Other Sources".

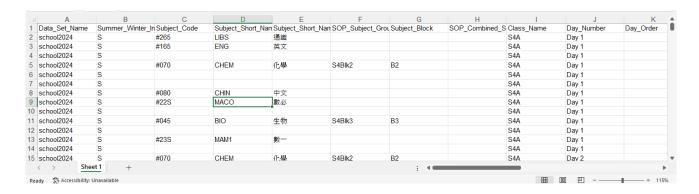




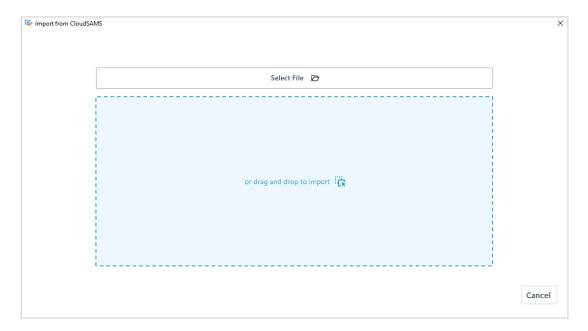
# 8.3.1 Import from CloudSAMS



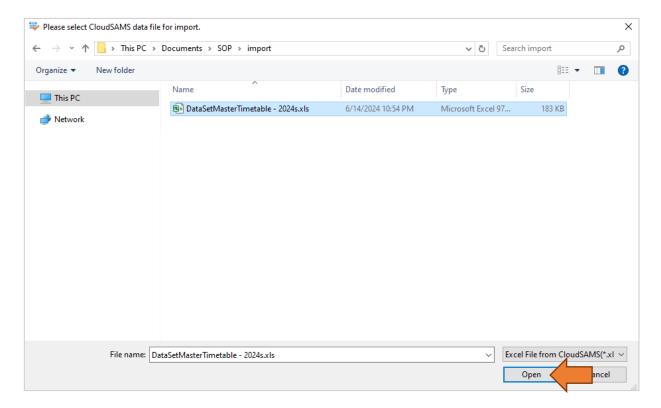
Below shows a sample Excel file of Master Timetable export from CloudSAMS.



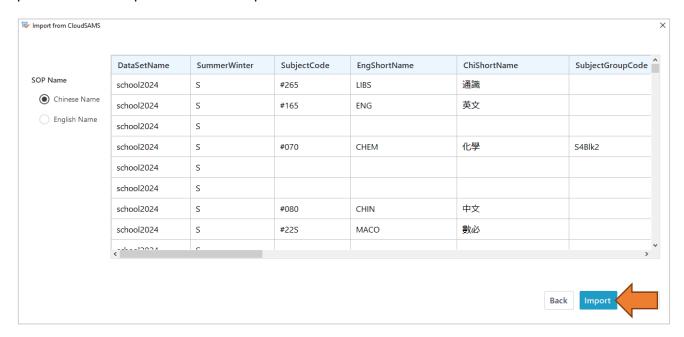
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



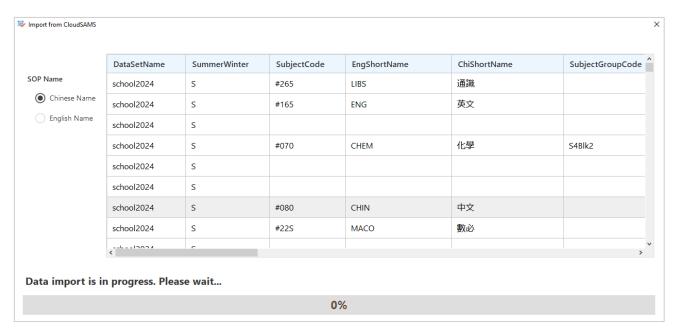
Select the file for import and click "Open" button.



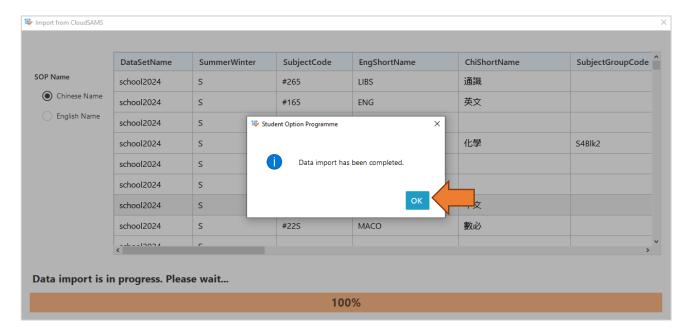
Select "SOP Name". The data to be imported will be shown in the table on the right-hand side for preview. Click "Import" button to import the data.



A progress bar will be displayed to show the import progress.



Click "OK" button to close the completion prompt box.



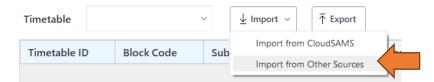
The data is imported. Click "Timetable" field to select the timetable to view.



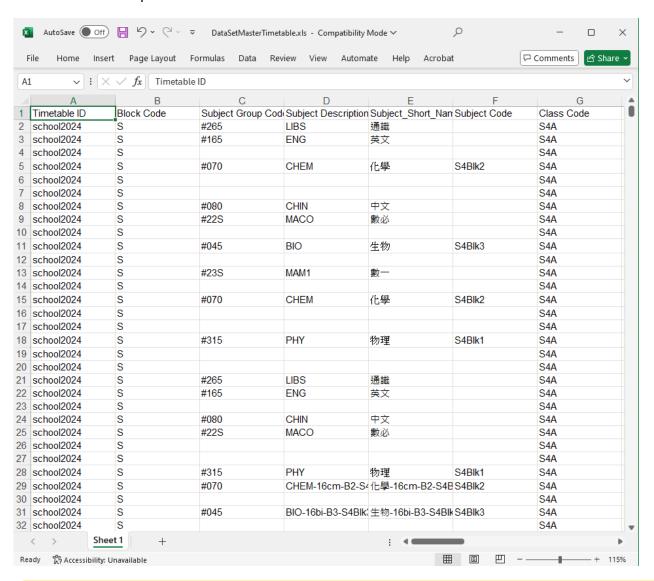
The selected timetable will be displayed.



### 8.3.2 Import from Other Sources



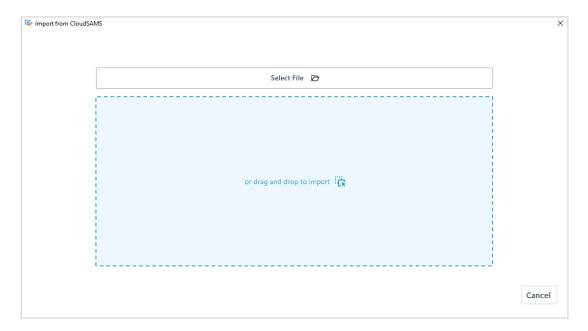
Below shows a sample Excel file of Master Timetable from other source.



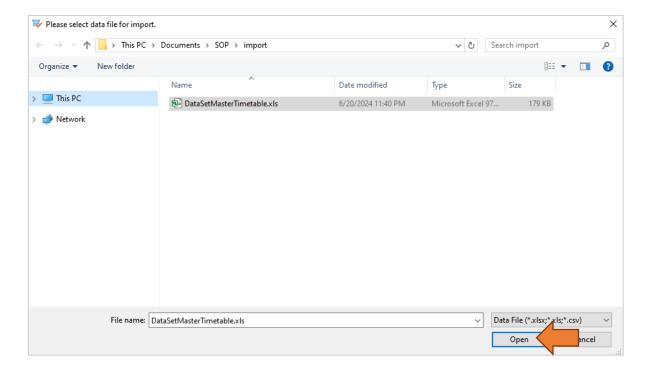


To obtain a file template for import, please refer to 8.3.3 Export Master Timetable.

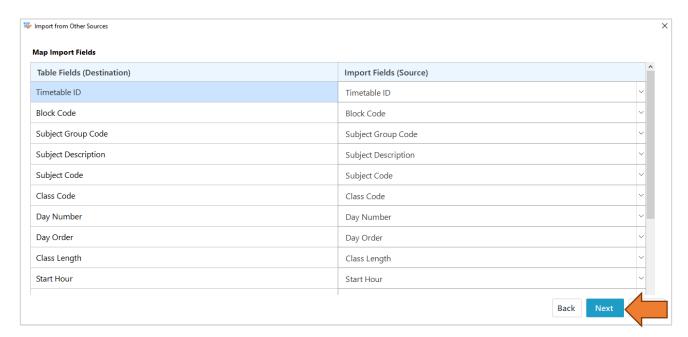
Click "Select File" button to choose a file or drag and drop a file to the blue area for import.



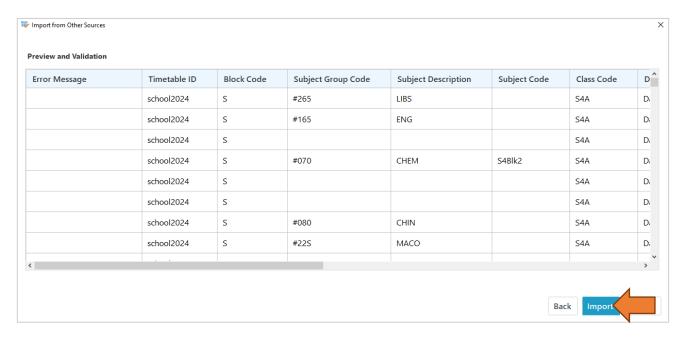
Select the file for import and click "Open" button.



The system will map the import fields automatically based on the column titles in the import file. Users can also select the import fields manually. Click "Next" button when all the fields are mapped to start the data validation.



If the data is invalid, warning message(s) will be displayed under "Error Message" column. If no error is encountered, click "Import" button.



### A progress bar will be displayed to show the import progress.

Import from Other Sources

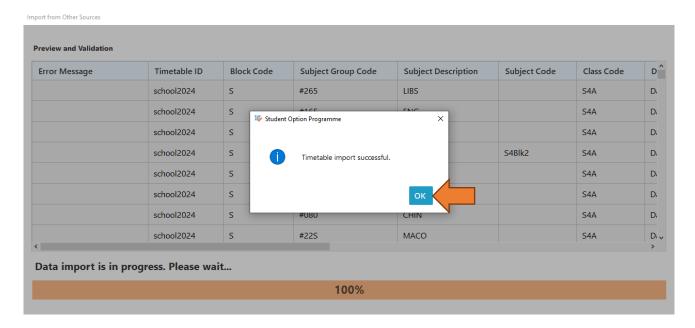
#### **Preview and Validation**

Error Message	Timetable ID	Block Code	Subject Group Code	Subject Description	Subject Code	Class Code	D^
	school2024	S	#265	LIBS		S4A	Di
	school2024	S	#165	ENG		S4A	Di
	school2024	S				S4A	Di
	school2024	S	#070	CHEM	S4Blk2	S4A	Di
	school2024	S				S4A	Di
	school2024	S				S4A	Di
	school2024	S	#080	CHIN		S4A	Di
	school2024	S	#22S	MACO		S4A	Div

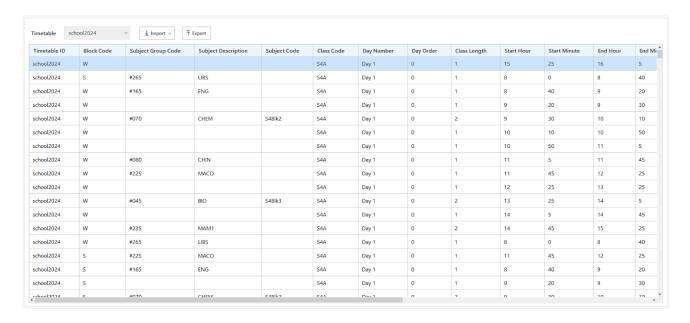
Data import is in progress. Please wait...

0%

## Click "OK" button to close the completion prompt box.

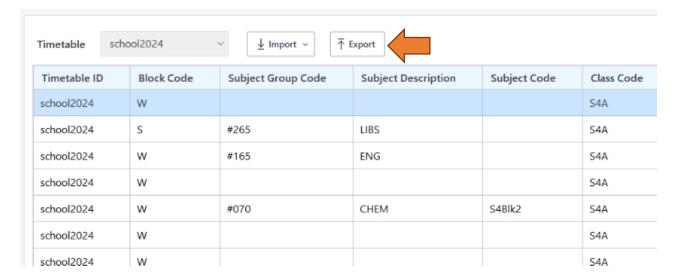


The timetable will be displayed.

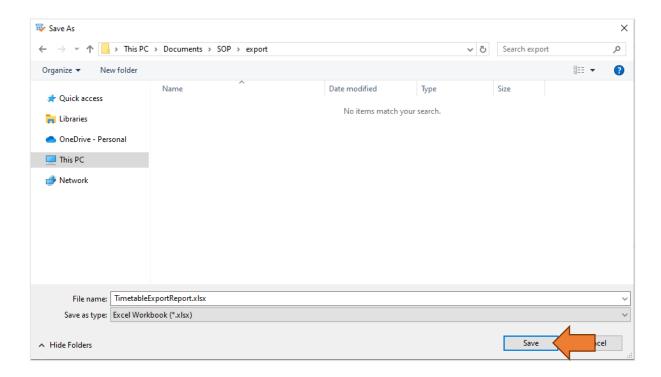


### 8.3.3 Export Master Timetable

Click the "Export" button.



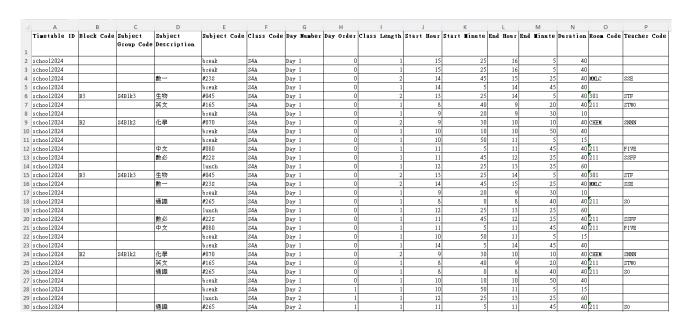
Select destination folder, enter the filename, and click "Save" button. If users want to export as a CSV file, select CSV file format under "Save as type" before clicking "Save" button.



### The file export is completed.



### Below shows a sample exported file.

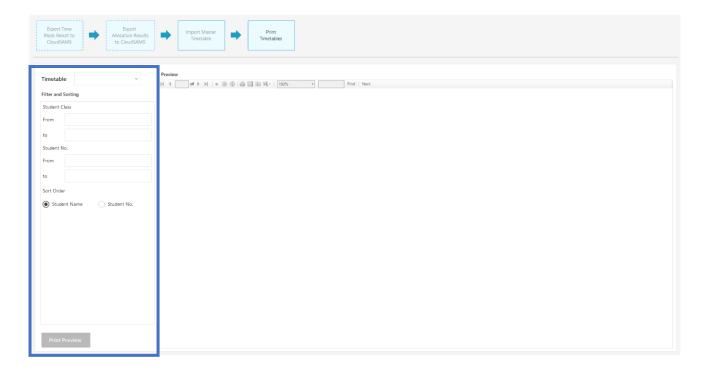


### 8.4 Print Students' Individual Timetables

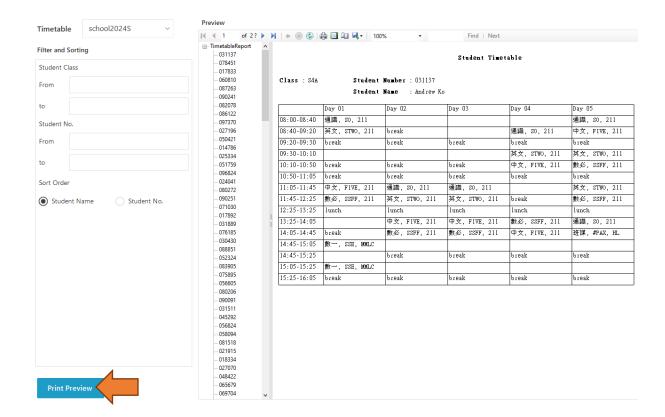
Click Main Menu (Print Timetables) and click "Print Timetables" under "Print Timetables".



A timetable preview page will be displayed. Select "Timetable" and enter the filtering criteria.



Click "Print Preview" button. The timetables of the students will be displayed.



### Validation:

If no time block is confirmed, the below message will be displayed.



### Remarks:

Students' "Next Year Class" in "Student Particulars" must be defined before printing their individual timetables.



To update the particulars of all students in one go, please refer to 3.1.4 <u>Import Student</u> Particulars.

## 9. Reports

This section shows how to view and print the reports:

- Time Block with Satisfaction Rate
- Elective Subject Statistics
- List of Students for Elective Subjects
- List of Student Options in Priority Order & Elective Subject Allocation
- Vacancies of Elective Subjects
- List of Students with Insufficient Elective Subject Allocation
- List of Students with Offered Subjects / Modules
- List of Students with Subject Allocation and Block Allocation Results

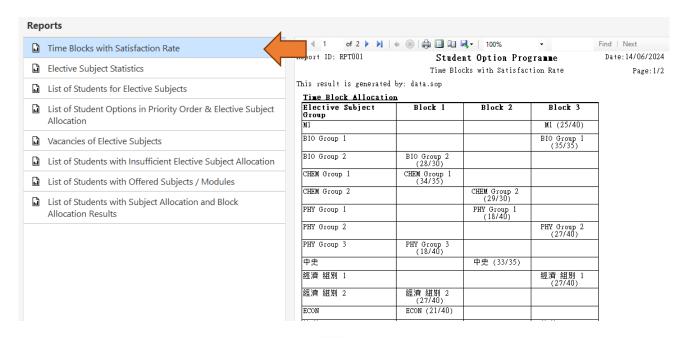


The list of reports are displayed on the left-hand side of the page.

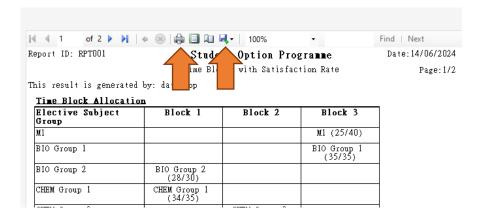


### 9.1 Time Block with Satisfaction Rate

This report lists time block generation results, the quota of each elective subject group, and the allocation rate of each priority and average satisfaction rate.



When the report is ready, click the print icon ( ) to print the report or the floppy disk icon ( ) to save the report as PDF, Word or Excel file.



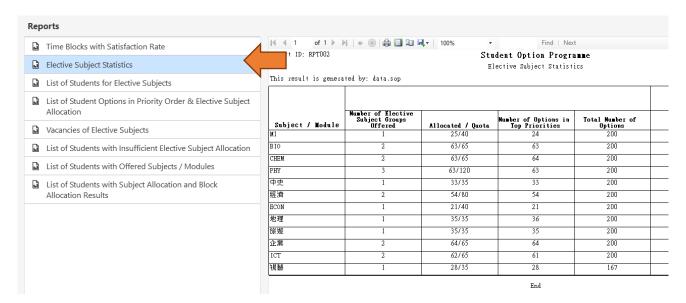
### Remarks:

BIO Group 2 (28/30)	Figures in bracket: Allocated / Quota
Overall Allocation Rate 100.00%	Overall Allocated Rate: (Number of elective subjects allocated / Number of elective subjects need to be allocated) X 100%
Average Satisfaction 95.50% Rate (Top Priorities)	Average Satisfaction Rate (Top Priorities): Average of the Sum of each student's satisfaction rate of the allocated elective subjects at top priorities

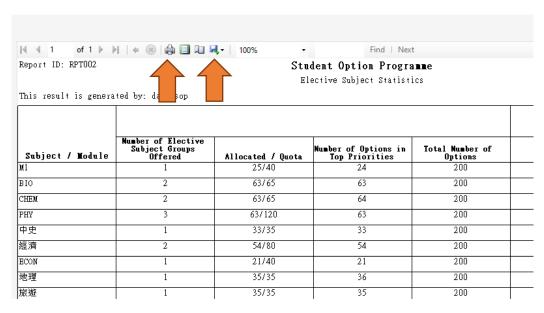
Average Satisfaction 98.80% Rate (All Options) Average Satisfaction Rate (All Options): Average of the Sum of each student's satisfaction rate of all the allocated elective subjects

# 9.2 Elective Subject Statistics

This report lists statistics of student preferences grouped by elective subjects.



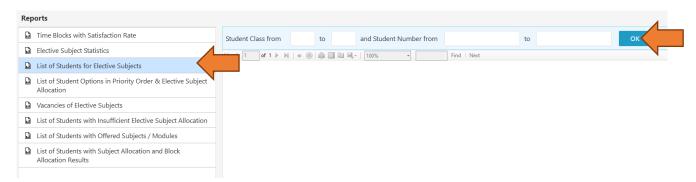
When the report is ready, click the print icon ( $\bigoplus$ ) to print the report or the floppy disk icon ( $\Longrightarrow$ ) to save the report as PDF, Word or Excel file.



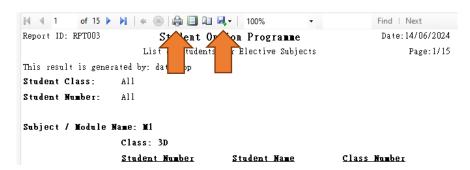
### 9.3 List of Students for Elective Subjects

This report lists the elective subjects allocated to students grouped by elective subject name and class. Users may filter the result by class range and student number range.

In the "List of Students for Elective Subjects" screen, enter "Student Class" and "Student Number" in the searching filter (if any), and click "OK" button to view the report.

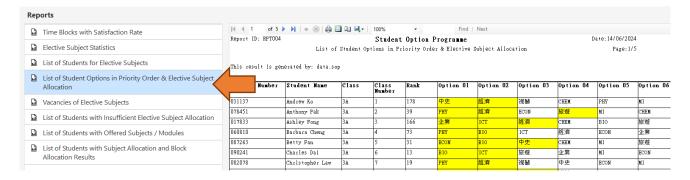


When the report is ready, click the print icon ( $\bigoplus$ ) to print the report or the floppy disk icon ( $\Longrightarrow$ ) to save the report as PDF, Word or Excel file.

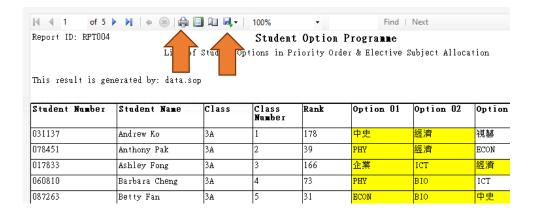


# 9.4 List of Student Options in Priority Order & Elective Subject Allocation

This report lists student preferences and their allocated results.

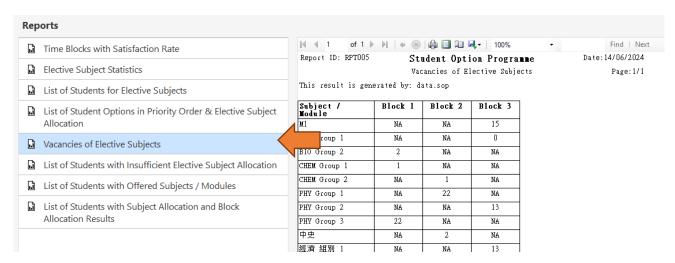


When the report is ready, click the print icon ( ) to print the report or the floppy disk icon ( ) to save the report as PDF, Word or Excel file.

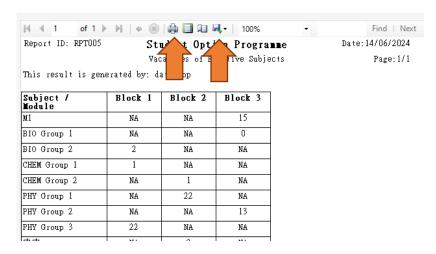


## 9.5 Vacancies of Elective Subjects

This report lists the vacancy of each subject group in the time block.

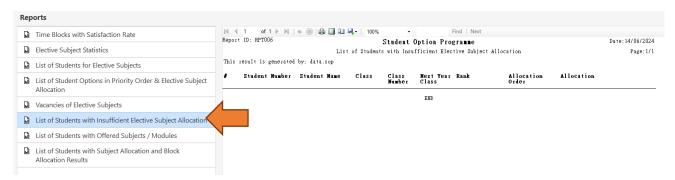


When the report is ready, click the print icon ( $\bigoplus$ ) to print the report or the floppy disk icon ( $\bigvee$ ) to save the report as PDF, Word or Excel file.

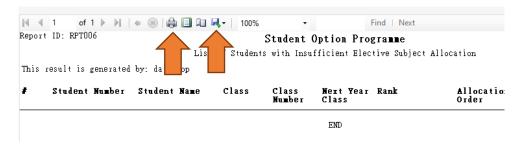


### 9.6 List of Students with Insufficient Elective Subject Allocation

This report lists students with insufficient elective subject allocation and the number of elective subjects allocated to the students.

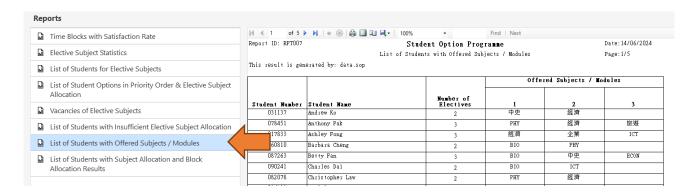


When the report is ready, click the print icon ( $\bigoplus$ ) to print the report or the floppy disk icon ( $\blacksquare$ ) to save the report as PDF, Word or Excel file.

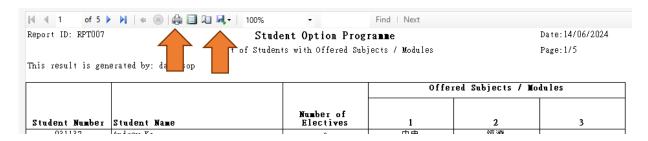


## 9.7 List of Students with Offered Subjects/ Modules

This Report lists students and their allocated results.

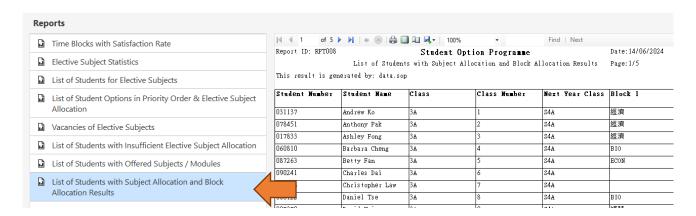


When the report is ready, click the print icon ( $\bigoplus$ ) to print the report or the floppy disk icon ( $\Longrightarrow$ ) to save the report as PDF, Word or Excel file.

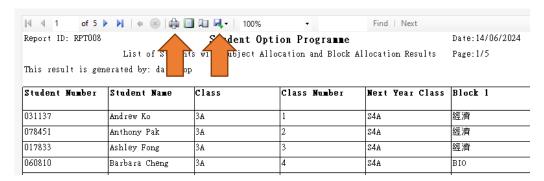


## 9.8 List of Students with Subject Allocation and Block Allocation Results

This Report lists students' elective subjects and their block allocated result.



When the report is ready, click the print icon ( ) to print the report or the floppy disk icon ( ) to save the report as PDF, Word or Excel file.



# **Appendix**

# I. Definition of "Finish" in Current Status

Below table lists the definition of "finish" for each page.

Page	Definition of Finish
System Settings	<ul> <li>Filled in all fields in the system settings:</li> <li>No. of Time Blocks</li> <li>No. of Elective Subjects to be taken by Students in general</li> <li>Method of Elective Subjects Allocation</li> </ul>
Student Particulars	At least one student is in the list
Elective Subjects Offered by the School	At least one elective subject in any MOI is selected
Student Options	At least one student in the Student Particulars has their option orders filled
Elective Subject	Filled in the following information:
Group Setup	No. of Elective Subject Groups and Quota
	No. of Elective Subject Groups in each Time Block
Generate/Maintain Time Blocks	Any time block is confirmed
Elective Subject	All students in the Student Particulars have filled in their allocation orders
Allocation Orders	
Allocate Elective	All students in the Student Particulars have been allocated with sufficient
Subjects	elective subjects they are required to take

### II. Calculation of Satisfaction Rate

The satisfaction rate calculation is based on the marks of each allocation. If the allocation takes elective subject at Option N, a specific mark is given to the allocation as shown below.

Ontion	Forn	nula	Mod-(0/)
Option	2X	3X	Mark (%)
Option 1	100 / 2	100 / 3	50 or 33.33333333
Option 2	100 / 2	100 / 3	50 or 33.33333333
Option 3	100 / 3	100 / 3	33.3333333
Option 4	100 / 4	100 / 4	25
Option 5	100 / 5	100 / 5	20
Option 6	100 / 6	100 / 6	16.66666667
Option 7	100 / 7	100 / 7	14.28571429
Option 8	100 / 8	100 / 8	12.5
Option 9	100 / 9	100 / 9	11.11111111
Option 10	100 / 10	100 / 10	10
Option 11	100 / 11	100 / 11	9.090909091
Option 12	100 / 12	100 / 12	8.33333333
Option N	100 / N	100 / N	

The satisfaction rate of a single student is defined as follows:

Type of Satisfaction Rate	Definition
Top Priorities	Sum of the marks of the allocations which only counts students' top
	options based on the number of elective subjects to be taken
All Options	Sum of all marks of all allocations based on all of the students'
	preferences for the allocated subjects

The average satisfaction rate of all students is defined as follows:

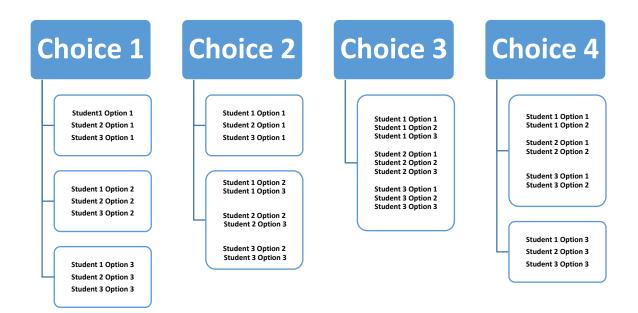
Type of Satisfaction Rate	Definition
Top Priorities	Average of the "Top Priorities" satisfaction rate of all students
All Options	Average of the "All Options" satisfaction rate of all students

In the calculation, elective subjects duplicated/crashed with the allocated elective subjects with lower priorities are not counted. For example, as shown in below figure, Option 2 is not counted when calculating the satisfaction rate of the Allocation 1 as Option 2 is the same elective subject, but with different MOI as Option 1.

Allocated Subjections to be of		No. of elect	ive subjects t	aken by th	e student = 3			
Option	1	2	3	4	5		Satisfac	ction Rate
Elective Subjects	ВІО	生物	CHEM	PHY	ECON	Allocated Options	Top Priorities	All Options
Allocation 1	1		2	3	4	1, 2, 3	100%	100%
Allocation 2	1	2	3	4	5	2, 3, 4	100/3+ 100/3+ 0 = 66.67%	100/3+ 100/3+ 100/4 = 91.67%
Allocation 3	1	2	3	4	5	2, 3, 5	100/3+ 100/3+ 0 =	100/3+ 100/3+ 100/5 =

# III. Allocation Algorithm Choices (Overall Ranking)

Allocation Algorithm Choices	Definition
Choice 1	One of each student's choices will be fulfilled in each iteration.
Choice 2	One of each student's choices will be fulfilled in the 1 <sup>st</sup> iteration.
	His/her remaining choices will be allocated in the 2 <sup>nd</sup> iteration.
Choice 3	All the choices of each student would be allocated in one iteration.
Choice 4	Two of each student's choices will be fulfilled in the 1 <sup>st</sup> iteration.
	His/her remaining choices will be allocated in the 2 <sup>nd</sup> iteration.



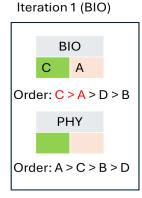
### IV. Allocation Algorithm (Elective Subject Queue)

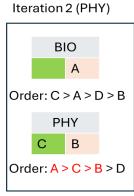
• The elective subject allocation algorithm for Elective Subject Queue allocates elective subjects to students based on the allocation orders of the students in each elective subject and the corresponding student options.

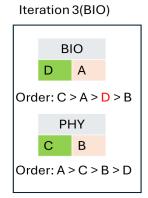
- The algorithm is divided into different iterations. One elective subject is handled in each iteration.
- In each iteration, the elective subject is allocated to the students at the top N allocation order, where N is the available quota of the elective subject.
- For each allocation, the algorithm determines whether the student should accept or reject the allocation so that the students always maintain the best possible options.
- If the student rejects the allocation, the elective subject is given to another student in N+1 allocation order. The algorithm stops after completing allocation of all elective subjects.
- For example, as shown in below figure, there are 2 elective subjects (BIO and PHY) and 4 students (A, B, C, D). Each elective subject has 2 quotas. Each student has given their options on each elective subject, and each elective subject has defined the allocation orders for each student.

Students	Option 1	Option 2
Α	BIO	PHY
В	BIO	PHY
С	PHY	BIO
D	PHY	BIO

BIO
Order: C > A > D > B
PHY
Order: A > C > B > D







- In the 1<sup>st</sup> iteration, Student A and Student C are allocated to BIO as they are on the top of the allocation order list.
- In the 2<sup>nd</sup> iteration, Student A and Student C are allocated to PHY. Student A rejects PHY as Student A prefers BIO over PHY, so Student B is allocated to PHY instead. Student C rejects BIO and is allocated to PHY as Student C prefers PHY over BIO.
- Since BIO has 1 free quota, BIO is considered in the 3<sup>rd</sup> iteration, and Student D is allocated to BIO.

## V. Subject Group Distribution Choices

Subject Group Distribution Choices*	Definition	Objective
Choice 1	Elective subjects will be allocated to students based on students' allocation order, and students will be distributed to different subject groups based on their options. (May achieve a higher satisfaction rate).	To achieve a higher overall satisfaction rate. Subject group shifting/swapping on the allocating student and other students and backtracking are supported.
Choice 2	Elective subjects will be allocated to students based on students' allocation order, and students will be distributed to different subject groups based on their options and allocation order.	To group students of similar ability together. Only support subject group shifting/swapping on the allocating student.

<sup>\*</sup>Note: Subject Group Distribution Choices are applicable to elective subjects with more than one subject group only.

When choosing which elective subject group to be allocated, the elective subject allocation algorithm first determines which elective subject group can lead to a better satisfaction rate of the student.

For example, Student A has the following options:

Student	Option 1	Option 2	Option 3	Option 4
Α	BIO	PHY	CHEM	GEO

Given the following time block results. The elective subject allocation algorithm allocates BIO Grp 1 to Student A because choosing BIO Grp 1 may result in allocating other elective subjects with more preferred options (highlighted in yellow).

Time Block Results

Block 1	Block 2	Block 3
BIO Grp 1	BIO Grp 2	
		CHEM
	PHY	
GEO		

If Student A is allocated to BIO Grp 1:

Student	Option 1	Option 2	Option 3	Option 4				
Α	BIO PHY CHEM GEO							
If Student A is allocated to BIO Grp 2:								
Student Option 1 Option 2 Option 3 Option 4								
Α	BIO	PHY	CHEM	GEO				

If both elective subject groups can lead to results with the same satisfaction rate, SOP will choose the elective subject group based on the subject group distribution choice selected by the user.

<u>If Subject Group Distribution Choice 1 is selected</u>, the elective subject allocation algorithm chooses the elective subject group with fewer students being allocated.

<u>If Subject Group Distribution Choice 2 is selected</u>, the elective subject allocation algorithm chooses the elective subject group which still has free quota and the most students allocated.

In the following example, assume the student allocation order is Student A, B, C, D, E, F, G, H.

For Subject Group Distribution Choice 1, the algorithm allocates BIO Grp 1 to Student A, BIO Grp 2 to Student B, BIO Grp 1 to Student C, BIO Grp 2 to Student D, and so on.

BIO Grp 1
Student A
Student C
Student E
Student G

BIO Grp 2
Student B
Student D
Student F
Student H

For Subject Group Distribution Choice 2, the elective subject allocation algorithm allocates BIO Grp 1 to Students A, B, C and D. When BIO Grp 1 is full, the elective subject allocation algorithm then allocates BIO Grp 2 to Students E, F, G and H.

BIO Grp 1
Student A
Student B
Student C
Student D

BIO Grp 2
Student E
Student F
Student G
Student H

Note that the algorithm is not always allocating students to the elective subject group with the above distribution. The algorithm reallocates students to an elective subject group if the algorithm finds that such reallocation allows students to take a preferred elective subject.

To summarise the difference of the algorithm for Choice 1 and Choice 2: The algorithm using Choice 1 reallocates a student to another elective subject groups to achieve a better satisfaction rate. This reallocation can involve another student if changing the allocation of another student can free up quotas for further reallocation. The algorithm using Choice 2 reallocates a student to another elective

subject groups to achieve a better satisfaction rate, but this reallocation does not involve any other students in order to maintain homogeneous group composition.

## VI. Backtracking Function

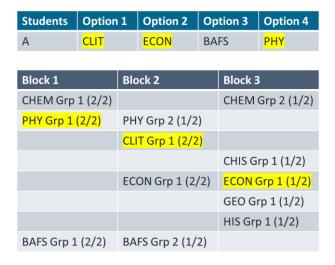
The backtracking function is enabled only when there exist elective subjects with more than one elective subject group, and "Choice 1" of the "Subject Group Distribution Choices" is selected.

When the execution of the student allocation algorithm is completed, the backtracking function is executed automatically to check if the average satisfaction rate (All Options) can be further increased.

The backtracking function is based on the concept of "chained adjustment". The function adjusts the allocation for one student, which may redistribute the quota for another student to update his/her allocation. By accumulating all adjustments, we can achieve an increase in the overall satisfaction rate.

The backtracking function is executed as follows. The backtracking function examines the current allocation of each student to check if the satisfaction rate (All Options) can be improved by shuffling students between the elective subject groups under the same elective subject. If the function cannot find another allocation for which satisfaction rate can be improved, the algorithm finds another allocation which retains the satisfaction rate (All Options), hoping to release free quota for other students to improve satisfaction rate. The function examines all students in one iteration and makes changes in allocation accordingly. The function iterates multiple times until the function confirms no more improvement in satisfaction rate.

For example, as shown below, Student A is allocated to CLIT, ECON and PHY (highlighted in yellow), which are in his/her Options 1, 2, and 4 respectively. The allocation of Student A cannot be further improved, and the allocation cannot be altered as CLIT has only one subject group.



n/m: n students have taken the elective subject of quota m

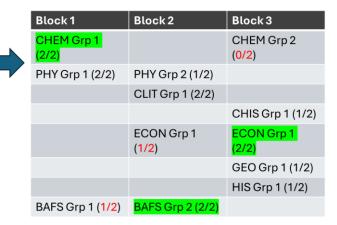
When the function examines Student B, although Student B is allocated to the best options (i.e. Options 1, 2, and 3), the function finds that Student B can be swapped to another allocation without decreasing the satisfaction rate. The function adjusts the allocation of Student B as shown below.

### Satisfaction Rate remains unchanged

Student	Option 1	Option 2	Option 3	Option 4	
В	ECON	BAFS	CHEM	DATS	

Student	Option 1	Option 2	Option 3	Option 4	
В	ECON	BAFS	CHEM	DATS	

Block 1	Block 2	Block 3
CHEM Grp 1 (1/2)		CHEM Grp 2 (1/2)
PHY Grp 1 (2/2)	PHY Grp 2 (1/2)	
	CLIT Grp 1 (2/2)	
		CHIS Grp 1 (1/2)
	ECON Grp 1 (2/2)	ECON Grp 1 (1/2)
		GEO Grp 1 (1/2)
		HIS Grp 1 (1/2)
BAFS Grp 1 (2/2)	BAFS Grp 2 (1/2)	



Option 2 Option 3

BAFS Grp 2 (2/2)

Option 4 PHY

GEO Grp 1 (1/2)

HIS Grp 1 (1/2)

n/m: n students have taken the elective subject of quota m

By changing the allocation of Student B, one quota of BAFS Grp 1 is released. In the next iteration, when the algorithm re-visits Student A, Student A can be allocated to PHY instead of BAFS (his/her Option 3), which can achieve a better satisfaction rate.

Students Option 1

BAFS Grp 1 (<mark>2/2</mark>)

Students	Option 1	Option 2	Option 3	Option 4	
Α	CLIT	ECON	BAFS	PHY	

Α	CLIT	ECON	BAFS	PHY	Α	CLIT	ECON	BAFS	PHY
Block 1		Block 2	Block	3	Block 1		Block 2	Bloc	k 3
CHEM Gr	o 1 ( <mark>2/2</mark> )		CHEM	Grp 2 ( <mark>0/2</mark> )	CHEM Grp	1 (1/2)		CHE	M Grp 2 (1/2
PHY Grp 1	. (2/2)	PHY Grp 2 (1/2)			PHY Grp 1	(1/2)	PHY Grp 2 (1/2)		
		CLIT Grp 1 (2/2)					CLIT Grp 1 (2/2)		
			CHIS	irp 1 (1/2)				CHIS	Grp 1 (1/2)
		ECON Grp 1 (1/2	2) ECON	Grp 1 (2/2)			ECON Grp 1 (2/2	e) <mark>ECO</mark>	N Grp 1 (1/2)

GEO Grp 1 (1/2)

HIS Grp 1 (1/2)

n/m: n students have taken the elective subject of quota m

BAFS Grp 1 (1/2) BAFS Grp 2 (2/2)