Student Scheduling System
User Manual

Student Scheduling System Part II

Team 10

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03/31/2014

Version History

Date	Author	Version	Changes made	Rationale
03/21/2014	Chenyang Bai	1.0	• Draft version of UM is formed. Initial information and guidelines added.	• To satisfy the requirements of the CCD/TRR and to provide instructions to the users how to use the scheduling system software.
03/29/2014	Bo Wang	1.1	• Add cloud server deployment procedure	• Detail the procedure for Cloudbees deployment
03/31/2014	Chenyang Bai	1.2	• Edit part 3 and part 4	• For CCD report
04/13/2014	Chenyang Bai	1.3	• Add login page and auto function	• Match the requirement

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1. Introduction

1.1 System Overview

The purpose of Student Scheduling System is to provide a study plan creation facilitator online for both undergraduate students and faculty of Steven's Institute of Technology.

By using the Student Scheduling System,course selecting is automated. For the student side, after entering the data of his/her course plans, a student can get possible study plan generated by the system. And for the administrative side; they can add/delete courses from the system, modify courses' features/information, form new course groups and create new degree programs. Meanwhile they are also able to delete/modify these course groups, degree programs or even requirements to complete these programs.

1.2 System Requirements

- Minimum hardware/software requirements for running the Student Scheduling System are given below under the related headers.
- Requirements might show minor differences among the different systems or hardware/OS equipment. Therefore; the given requirements below represent a recommended configuration as well to operate the Student Scheduling System properly.

1.1.1Hardware Requirements

Server Side Hardware Requirements:

- Processor : Intel® Xeon E3xxx Processor or equivalent.
- Memory : 3GB
- Storage : 5GB for database tier
- Data Bandwidth : (Relative to the simultaneous numbers of users.) ~1 Mbit/s
- Domain Name and Dedicated IP address
- I/O Devices for Maintenance Issues

User Side Hardware Requirements:

- Processor : Intel® Centrino/Ix/Celeron/PentiumIV; AMD Athlon/Phenom/FX processors or equivalent.
- Memory : 1GB free space
- Internet Connection
- I/O Devices to operate Web Browsers properly.

1.1.2Software Requirements

Server Side Software Requirements:

- UNIX Server or Windows Server
- Java Runtime Environment 7 or higher.

- MySQL Server
- PLAY framework for Java
- Java Editor (Recommended for maintenance issues)
- XAMPP (Recommended for maintenance issues)
- Java IDE for maintenance.

User Side Software Requirements:

- Windows, Linux, MacOSx or equivalent (mobile) operating system that can operate supported web browsers.
- Google Chrome (Strongly recommended.)
- Java Runtime Environment 7 or higher.

2. Installation Procedures

2.1 Initialization procedures

2.1.1Application Deployment on Cloud

Credentials:

- Email: *csci577team10@gmail.com*
- Email password: *zuzhangshiwangbo!*
- Cloud service: http://www.cloudbees.com
- Username on cloud: *team10*
- Email used to login the cloud: *csci577team10@gmail.com*
- Password to login to the cloud: *zuzhangshiwangbo!*

Prerequisites (Local Machine):

- JDK 7
- BeesSDK (see installation instructions here: http://developer.cloudbees.com/bin/view/RUN/BeesSDK)
- MySQL Workbench (see installation instructions here: http://dev.mysql.com/downloads/tools/workbench/)
- Binary distributive of the application (see section: Binary distributive creation for target server).
- Database dump file (from *sss/Database/sssVX_X.sql* or from production server)

BeesSDK is a set of utilities from cloudbees. You just need to download distributive (zip archive) from the website and unzip it.
After that you can run it from */cloudbees-sdk-1.5.2* folder by using *'bees'* command.

Deployment (from local machine to the cloud):

For general instructions on how to deploy PLAY framework applications on cloudbees.com; you can find useful resources here: http://wiki.cloudbees.com/bin/view/RUN/Playframework

If you need to deploy new version of application software on already operating server skip steps 1-5 and do only step 6.

If you need to restore data on the operating server, do step 5.

1. Create a new application called *'app'*:
   In web browser open http://www.cloudbees.com/
   Login the system using credential above.
   Then click *'ClickStart'* (top left corner) and select *'Play! Framework 2'.*
   Enter application name: *app*

2. Create DB called *'sss_db'*, in command line run:
   bees db:create sss_db

   You will need to enter a unique user name and password for this DB. As result you will see:
   Database Username (must be unique): *team10*
   Database Password: *root*
   database created: *sss_db –u team10 –p root*

3. Bind application and DB:
   bees app:bind -a app -db sss_db

4. Update *sss/conf/application.conf*, so that:
   db.default.driver=com.mysql.jdbc.Driver
   db.default.url="ec2-50-19-213-178.compute-1.amazonaws.com/sss_db?
   characterEncoding=UTF-8"
   db.default.user=team10
   db.default.password="root"
   db.default.logStatements=true

   Then build a binary distributive: *play dist*

   You can find DB configuration parameters by calling:
   bees db:info sss_db

   And it will show:

Database name	: *sss_db*
Account	: *team10*
Status	: *active*
Master	: *ec2-50-19-213-178.compute-1.amazonaws.com:3306*
Port	: *3306*
Username	: *team10*

5. Populate DB with initial data:
   Run MySQL Workbench (graphical tool), connect to the DB using credential listed earlier (*"New server instance"* button).
   Then press *"Manage Import / Export"* button and select section *"Data Import / Restore".*
   Then select database dump file in field "Import from self contained file".
   Select Database *'sss_db'* and press import.

   Set the runtime paremeter:
   bees config:set -a app -P db.default.url=jdbc:mysql://ec2-50-19-213-178.compute-1.amazonaws.com:3306/sss_db

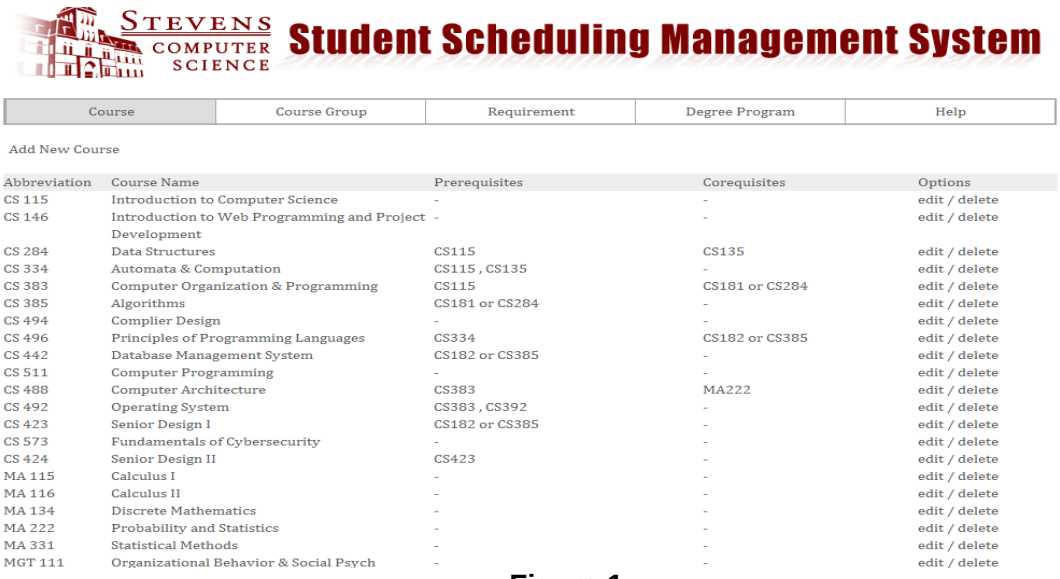
   bees config:set -a app -R java_version=1.7

6. Deploy binary distributive:
   bees app:deploy -a app -t play2 -R java_version=1.7 target/universal/sss-1.0-SNAPSHOT.zip

   You should be able to see:
   Application parameters: {containerType=play2}
   .....uploaded 25%
   .....uploaded 50%
   .....uploaded 75%
   .....upload completed
   deploying application to server(s)...
   Application student-scheduling/app deployed: http://app.team10.cloudbees.net

3. Operational Procedures

For the Administrative Users:



Abbreviation	Course Name	Prerequisites	Corequisites	Options
CS 115	Introduction to Computer Science	-	-	edit / delete
CS 146	Introduction to Web Programming and Project Development	-	-	edit / delete
CS 284	Data Structures	CS115	CS135	edit / delete
CS 334	Automata & Computation	CS115 , CS135	-	edit / delete
CS 383	Computer Organization & Programming	CS115	CS181 or CS284	edit / delete
CS 385	Algorithms	CS181 or CS284	-	edit / delete
CS 494	Complier Design	-	-	edit / delete
CS 496	Principles of Programming Languages	CS334	CS182 or CS385	edit / delete
CS 442	Database Management System	CS182 or CS385	-	edit / delete
CS 511	Computer Programming	-	-	edit / delete
CS 488	Computer Architecture	CS383	MA222	edit / delete
CS 492	Operating System	CS383 , CS392	-	edit / delete
CS 423	Senior Design I	CS182 or CS385	-	edit / delete
CS 573	Fundamentals of Cybersecurity	-	-	edit / delete
CS 424	Senior Design II	CS423	-	edit / delete
MA 115	Calculus I	-	-	edit / delete
MA 116	Calculus II	-	-	edit / delete
MA 134	Discrete Mathematics	-	-	edit / delete
MA 222	Probability and Statistics	-	-	edit / delete
MA 331	Statistical Methods	-	-	edit / delete
MGT 111	Organizational Behavior & Social Psych	-	-	edit / delete

Figure 1

Appendix 1: The first page of the administrative side is “course” , which is in the top of the screen, click“course”from the menu, we can skip to “course” page, as Figure 1 shows. In this page you can click “edit” or “delete” button to handle the existing courses.

Appendix 2: In “course” page, if you want to add new courses, you can click the “Add New Course” button, then the page will skip to “Course -> Add new course” page, which shows in Figure 2 below.

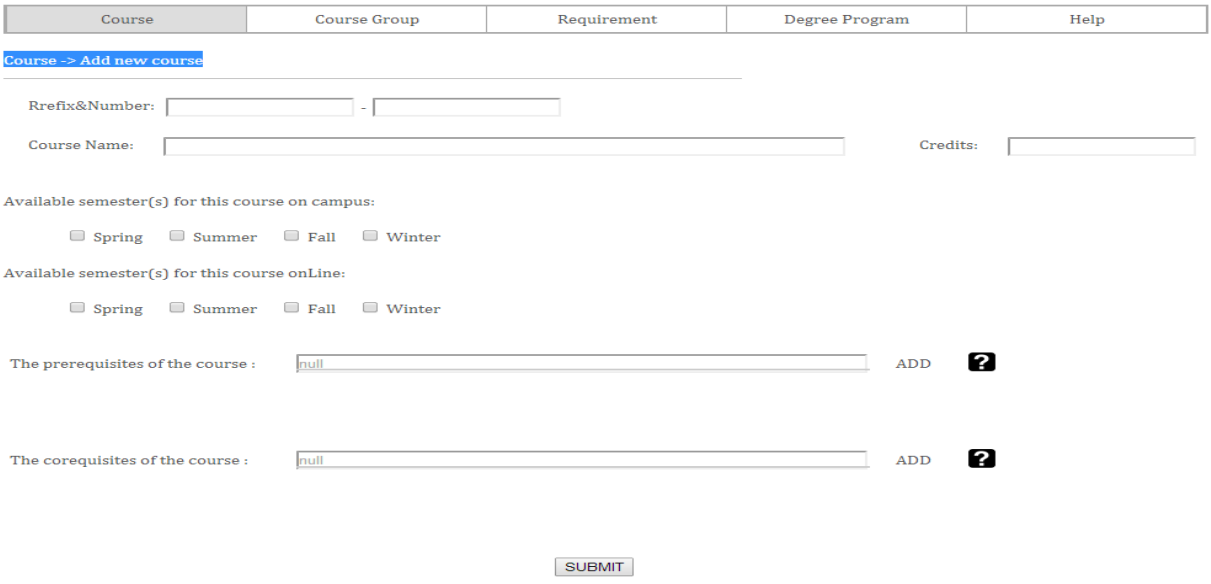


Figure 2

Appendix 3: ***In "Course -> Add new course" page***,you can add courses by inputting course Prefix&Number such as "CS-115". Then you can add course name and course credit such as "Introduction to Computer Science" and its credits is "3". After that, you can select available semester for this course both on campus and online. In the end, if the course has prerequisites or corequisites courses, you should input the relevant courses in the corresponding input box(if the courses have "and", "or" relationship, you should also choose the relation for the courses, and select group for the courses) after that, click "add" button, if you want to cancel the courses you have selected, you can double click on the course, then it will be canceled. When you finish the adding courses process, you can click "Submit" button. As Figure 3 and Figure 5 show below:

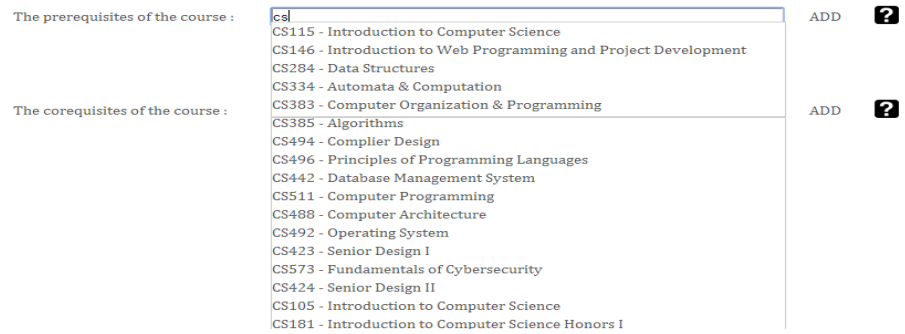


Figure 3

Figure 4

Appendix 4: Then we can go to the course group page, as Figure 5 shows below, in this page, you can click "edit" or "delete" button to handle the information of existing course groups, if you want to add new course groups, you can click "Add New Course Group" button to go to Add new course group page, which shows in Figure 6

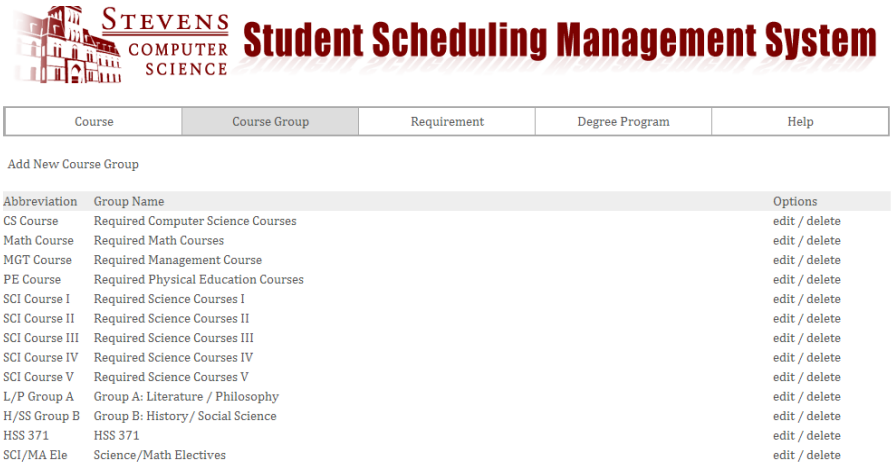


Figure 5

Appendix 5: ***In course group -> Add new course group page,*** we can input the Abbreviation and Title for the new course group, then select courses from the left course window, after we have selected all the courses for the new course group, we can click --> <-- button to make a new course group, then you make sure everything is right, clicking "submit" button to generate new course group.

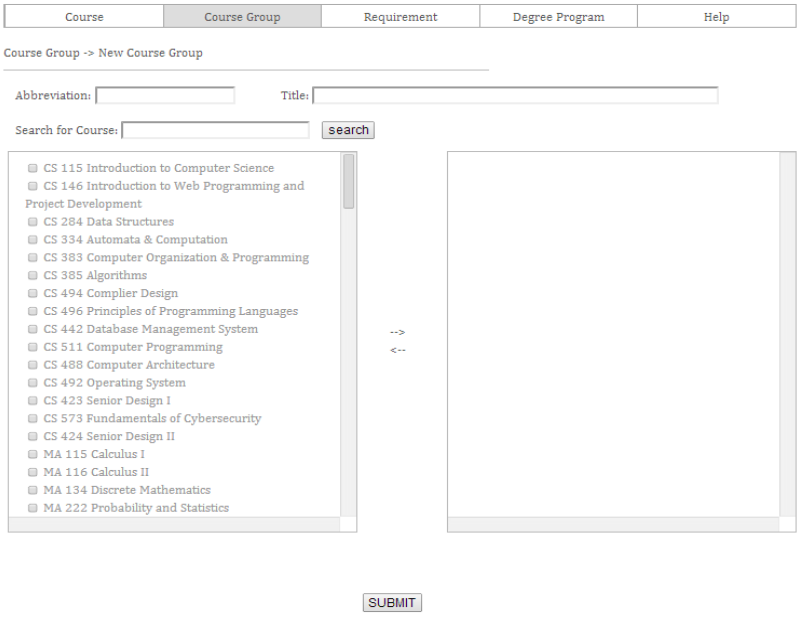
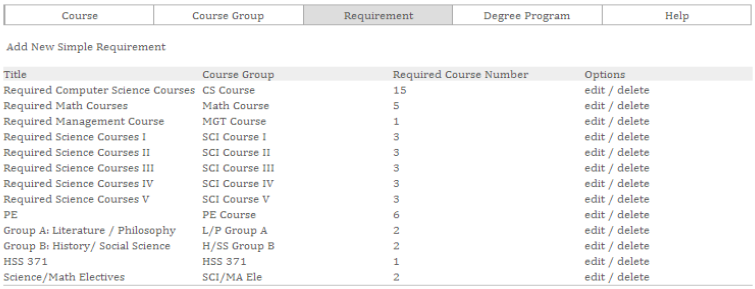


Figure 6

Appendix 6: For requirement, it includes simple requirement page and requirement page, in the ***simple requirement page,*** showing in the Figure 7 below:



Title	Course Group	Required Course Number	Options
Required Computer Science Courses	CS Course	15	edit / delete
Required Math Courses	Math Course	5	edit / delete
Required Management Course	MGT Course	1	edit / delete
Required Science Courses I	SCI Course I	3	edit / delete
Required Science Courses II	SCI Course II	3	edit / delete
Required Science Courses III	SCI Course III	3	edit / delete
Required Science Courses IV	SCI Course IV	3	edit / delete
Required Science Courses V	SCI Course V	3	edit / delete
PE	PE Course	6	edit / delete
Group A: Literature / Philosophy	L/P Group A	2	edit / delete
Group B: History/ Social Science	H/SS Group B	2	edit / delete
HSS 371	HSS 371	1	edit / delete
Science/Math Electives	SCI/MA Ele	2	edit / delete

Figure 7

Appendix 7: For each simple requirement, it includes a title and a course group, it also includes required course numbers of the group. You can edit and delete these information of each simple requirement.

Appendix 8: If you want to add a new simple requirement, you can click "Add New Simple Requirement" button to do this. As the Figure 8 shows below:

Appendix 9:

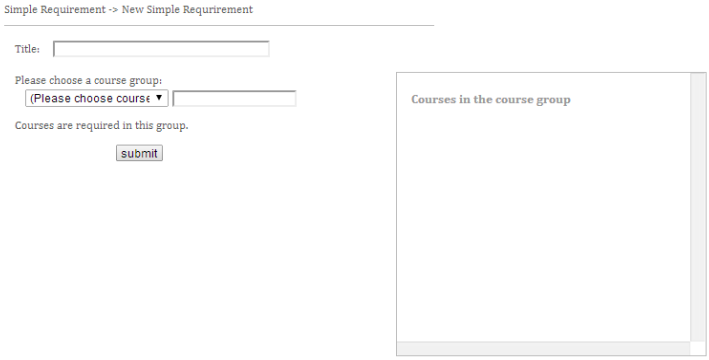
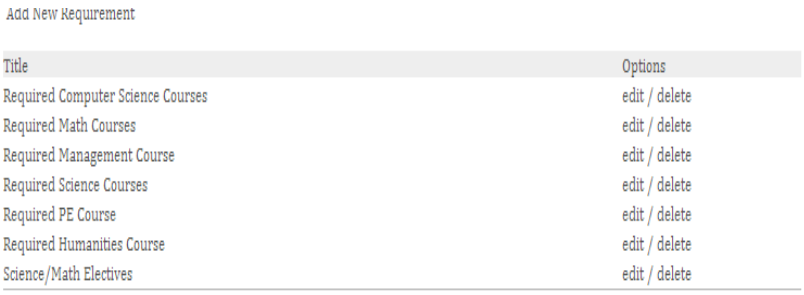


Figure 8

Appendix 10: ***In requirement page,*** we can edit and delete existing requirements as Figure 9 below:



Title	Options
Required Computer Science Courses	edit / delete
Required Math Courses	edit / delete
Required Management Course	edit / delete
Required Science Courses	edit / delete
Required PE Course	edit / delete
Required Humanities Course	edit / delete
Science/Math Electives	edit / delete

Figure 9

Appendix 11: If you want to add a new requirement, you can click "Add new requirement button" and skip to Add New Requirement page as Figure 10

Appendix 12:

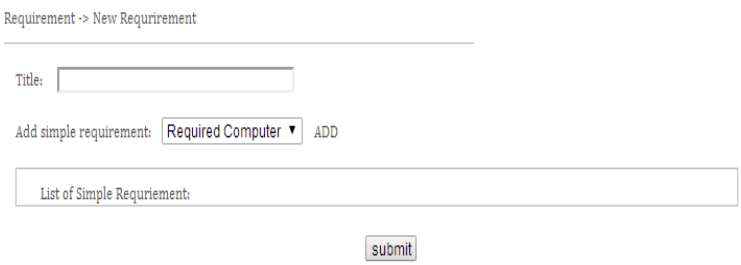


Figure 10

Appendix 13: For each new requirement, we should give a title and add simple requirements which includes in the requirement to the list of simple requirement. After that, we can click submit button to generate a new requirement.

Appendix 14: For degree program page, you can edit and delete existing degree program as Figure 11

Figure 11

Appendix 15: If you want to add a new degree program, you can click the "Add New Degree Program" button to skip to that page, shows in Figure 12:

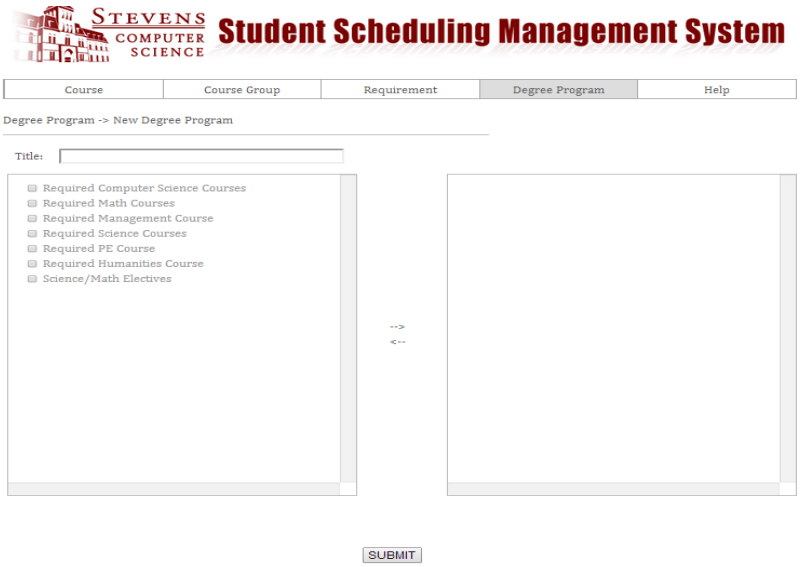


Figure 12

Appendix 16: In this page, you should input the title for new degree program and select requirement for this degree from the left requirement window, then click --> <-- button to generate requirements

to the new degree program. When you make sure all is right for the new degree, you can click submit button to generate new degree program.

For the Student side Users:

Step 1： *（1）*The first page for the Student side is login in page as Figure 13 shows, the username and password are both admin, showed below the "Login" button.

Figure 13

Step 1： *（2）*When you open the Student Side, you will see the page(Figure 14) below:

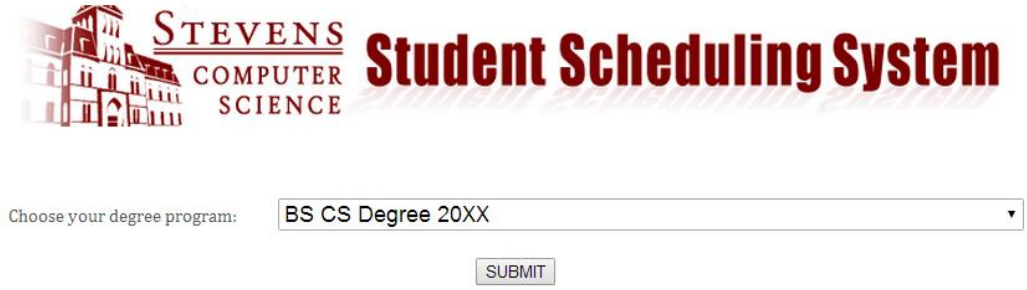


Figure 14

We are requested to choose a degree program, we can select one degree program here and **click "submit"** button.

Now we will skip to choosing course page(Figure 15) below:

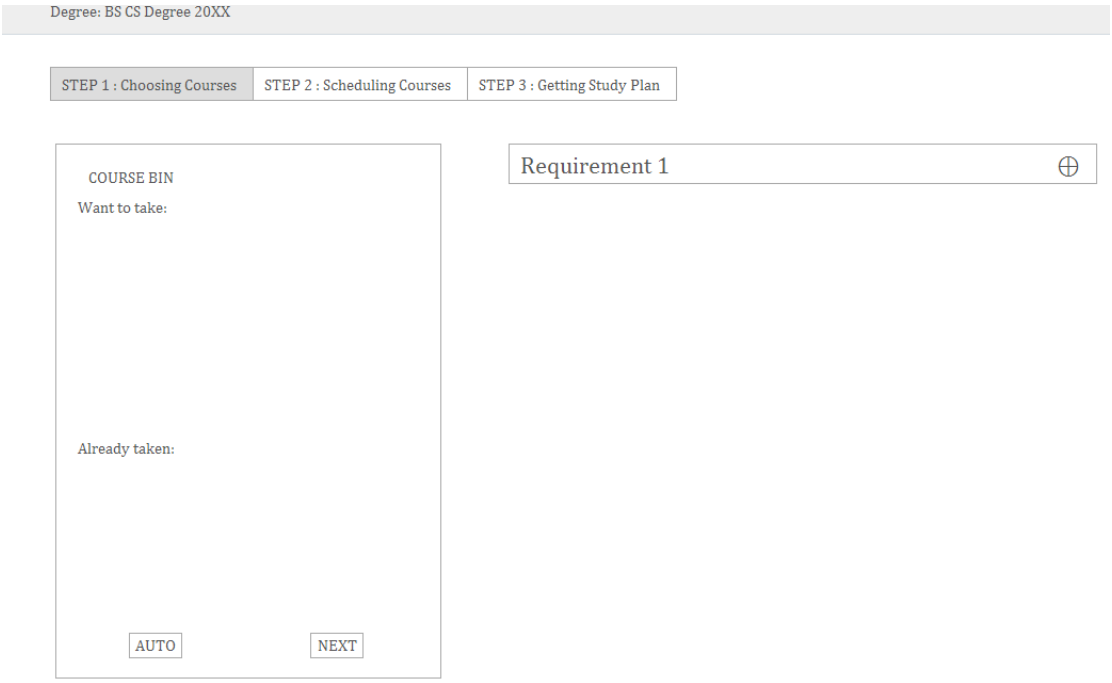


Figure 15

Here we can click ⊕ button to choose courses from the right window, as Figure 16 shows below, we should notice that because the corses have prerequisite and corequisite relationship, so some courses have such limit must be chosen after other courses in their requisite have been chosen. If we do not do this way, we will see error hint in as Figure 17

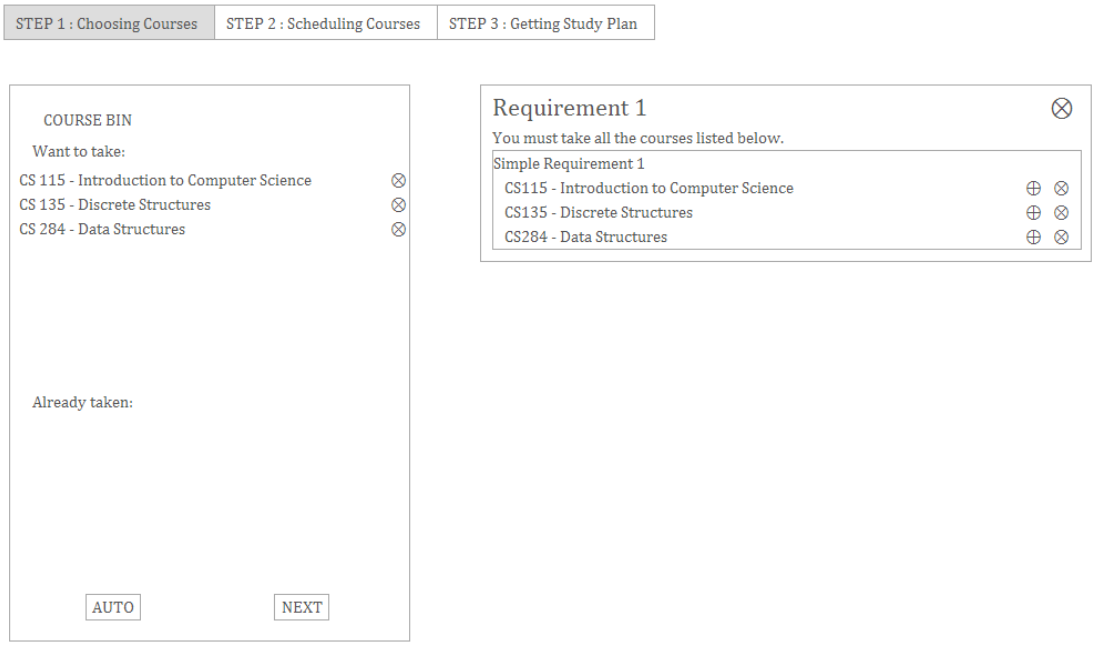


Figure 16

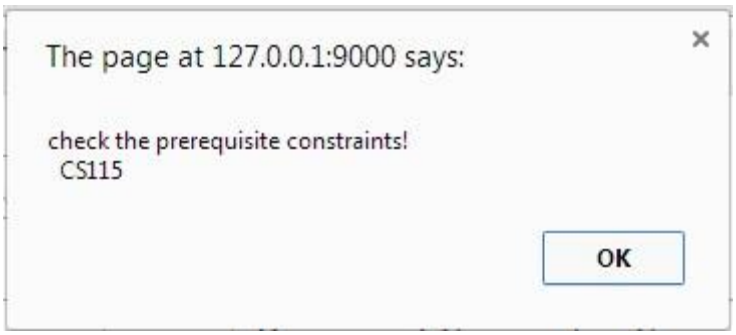


Figure 17

Step 1： *（3）* You can also click "Auto" button directly if you want the system to help you generate the courses automatically. Figure 18

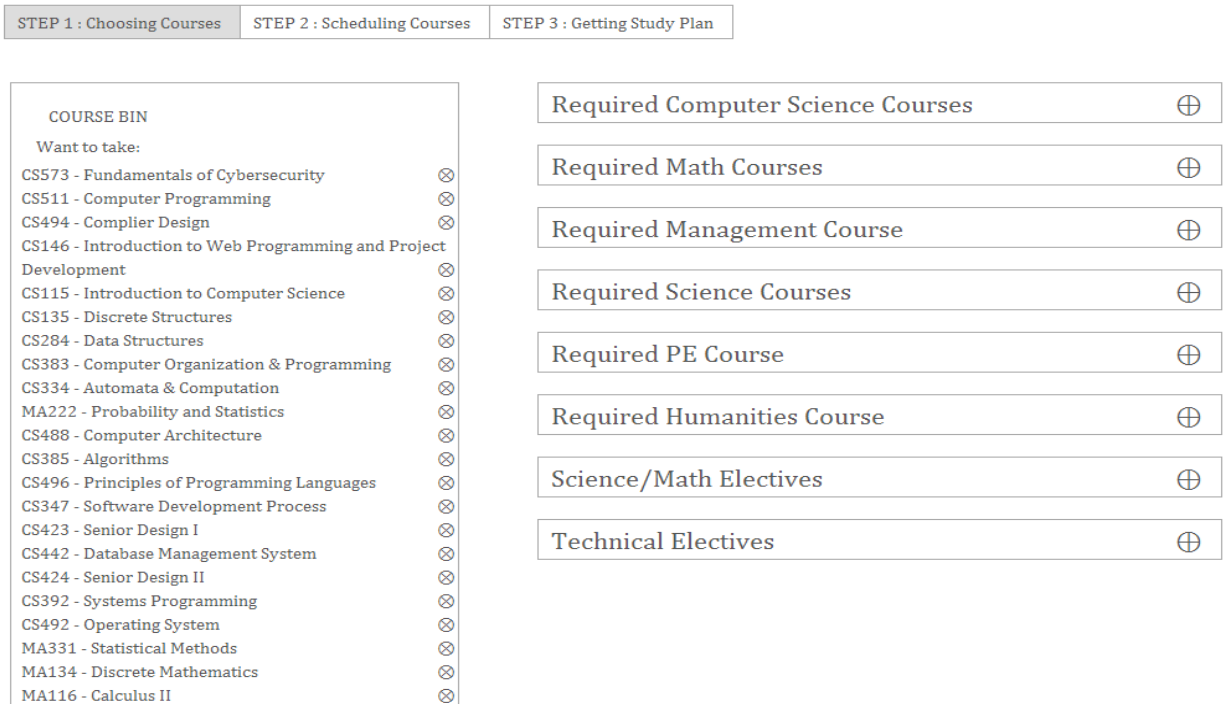


Figure 18

Step 2： When we have finished choosing courses, we can click "Next" button to skip to scheduling courses page, as Figure 19 shows below:

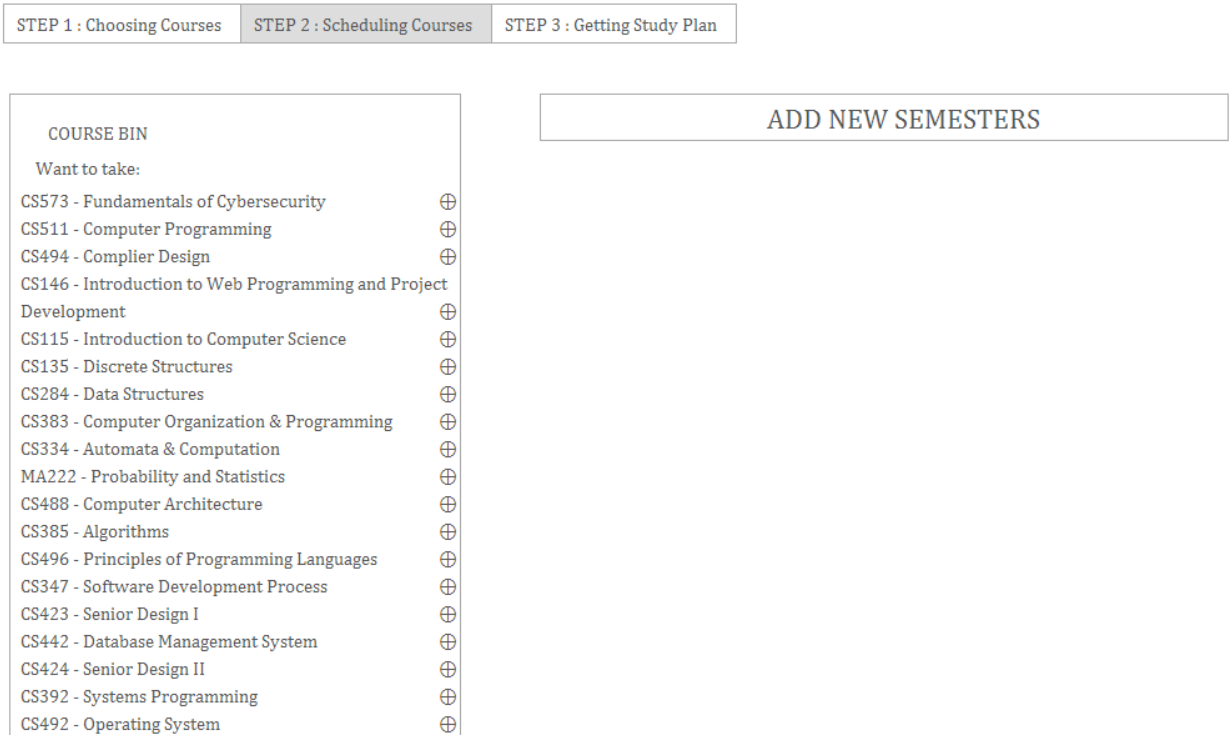


Figure 19

In this page we should **click "ADD NEW SEMESTER"** button and a window will jump out as Figure 20 below:

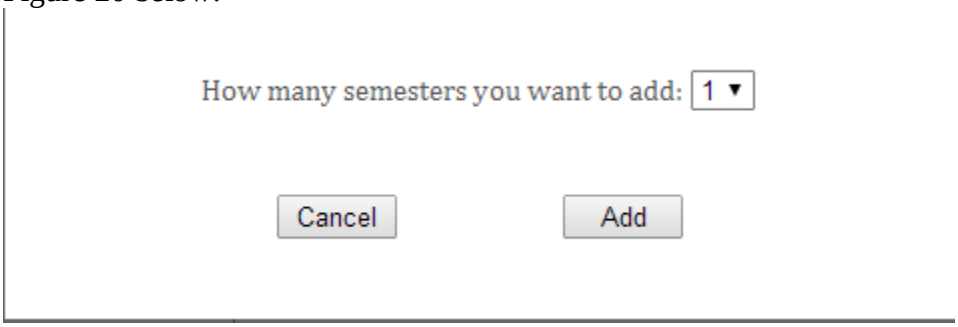


Figure 20

Here we select the number of **Semesters** we want to add and **click "Add"** button, then we will skip to another window as Figure 21 shows:

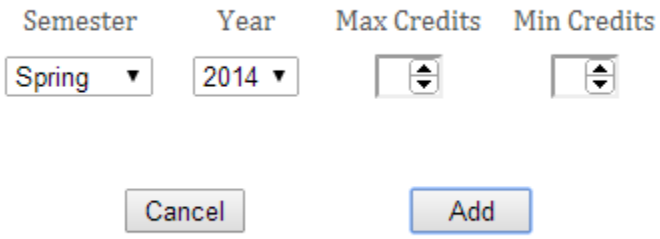


Figure 21

Here we select Semester and Year we want to add **,** we can also set the Max and Min credits we want to take in this semester, and **click "Add"** button to next page(Figure 22):

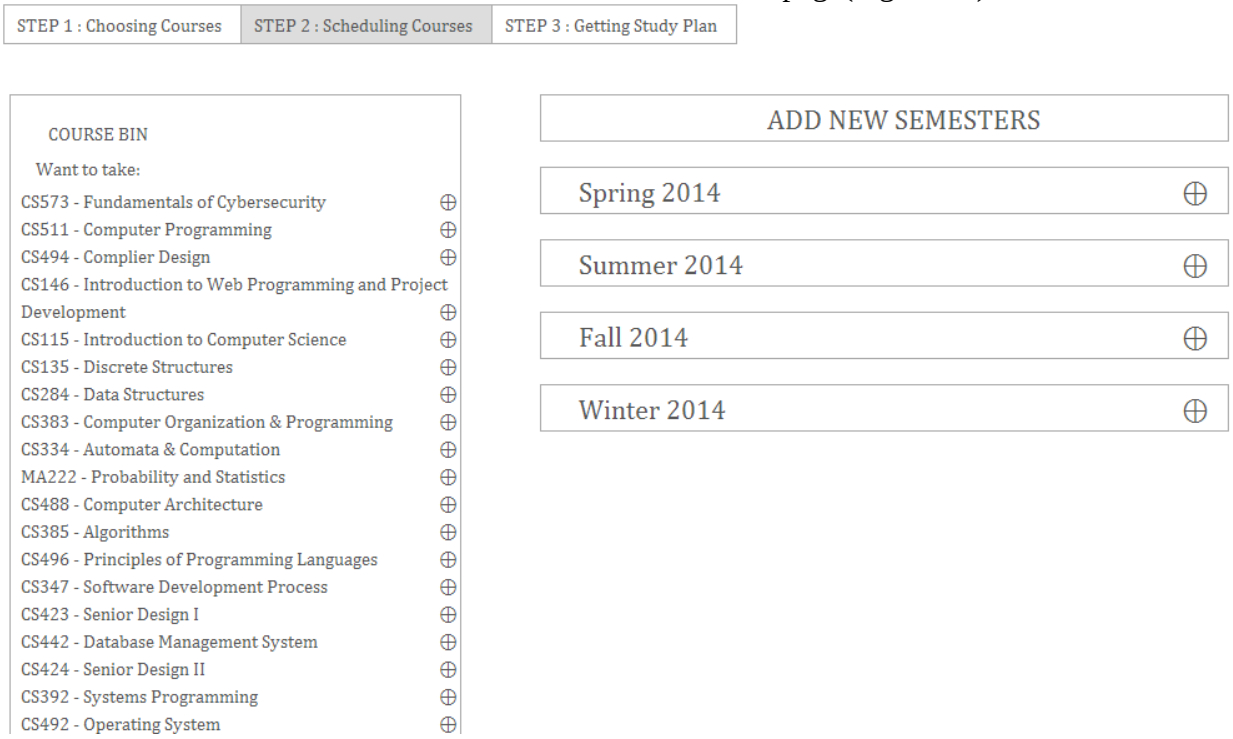


Figure 22

Here we can **click the Year of Semester** we selected and add courses from the course bin to the semester we want to take, as Figure 23 shows:

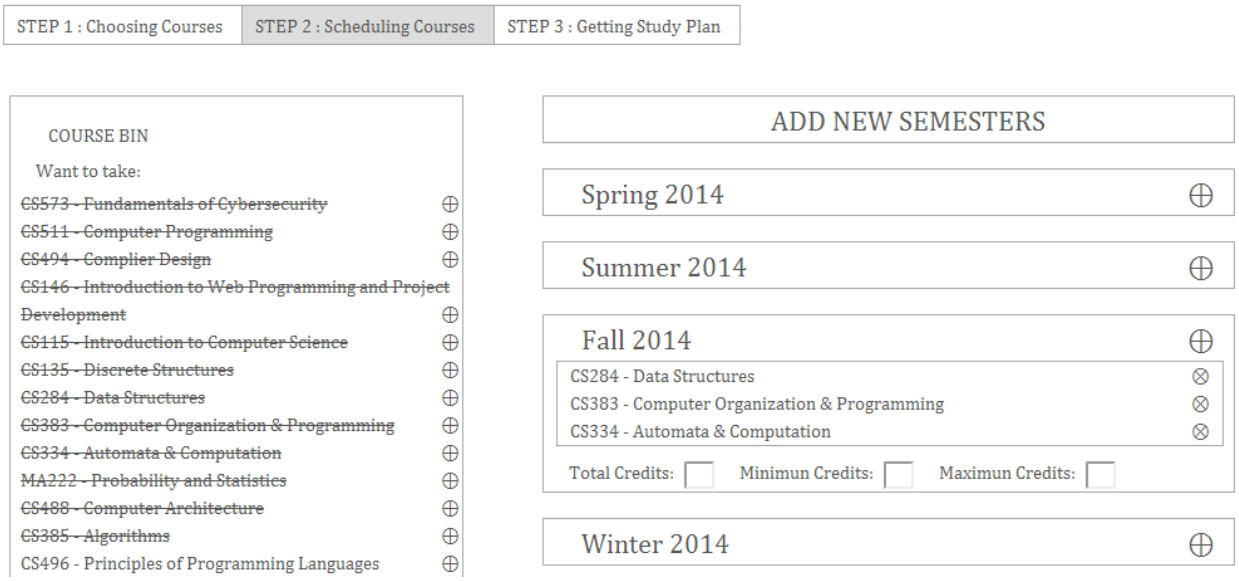


Figure 23

Step 3： If you let the system automatically generate the study plan for you in the first step, you can also get you study plan for each semester dynamically form the button “STEP 3 Getting Study Plan” Figure 24:

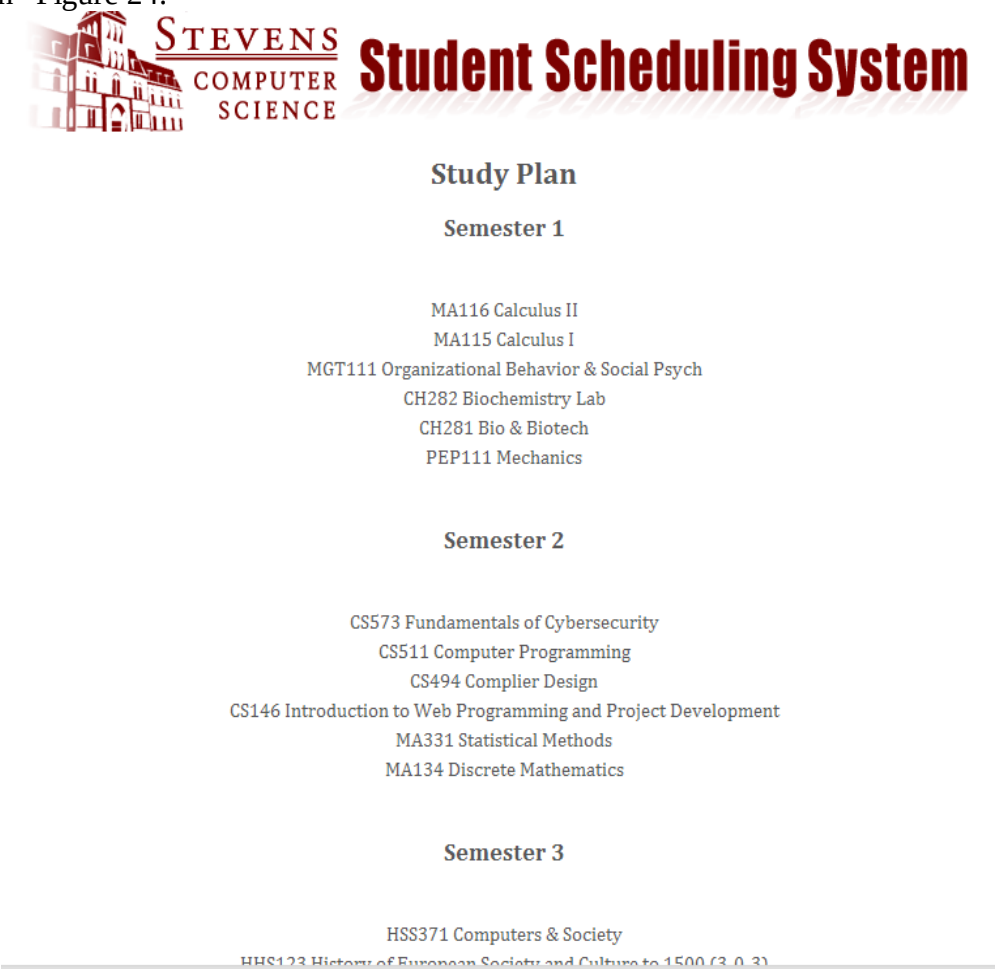


Figure 24

4. Troubleshooting

4.1 Frequently Asked questions

- *Q1:* Do I need to login either as a student or an administrator to interact with the system?
  - For administrator side, the answer is Yes, to get access to the actions of administrative side like adding/deleting courses/requirements/degree programs, you need to login as an admin with individual credentials as well.
  - For student side , the answer is NO, because the system is one time use for student and don't save information for student's study plan.
- *Q2:* Do I need to follow the rules of prerequisite and corequisite when I make study plan?
  - Yes, you can make a study successfully if you do not follow the rules, and the system will show error messages if you brake the rules.
- *Q3:*For "Course Add" function; is there any preferred format to enter prerequisites and corequisites?
  - Yes; you need to enter these course related information with such format <prefixes><course number> with space/and/or between each course. For example: "CS105 and CS125"; "CS105 CS145"; CS105 or CS201" and so on.

4.2 Error Codes and Messages

1.You should notice that because the corses have prerequisite and corequisite relationship, so some courses have such limit must be chosen after other courses in their requisite have been chosen. If we do not do this way, we will see error hint in as Figure 25:

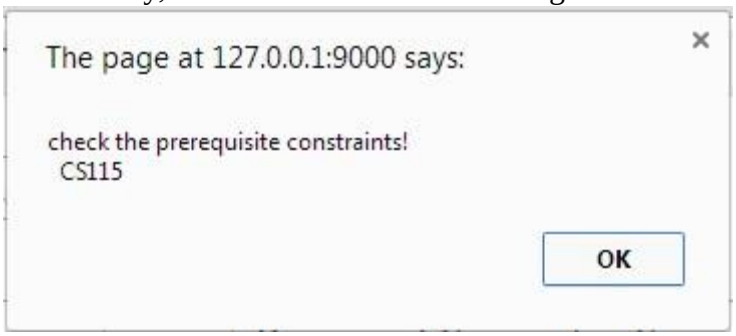


Figure 25

2. You should not enter the empty information in the input box, if so, the system will show error message as Figure 26:

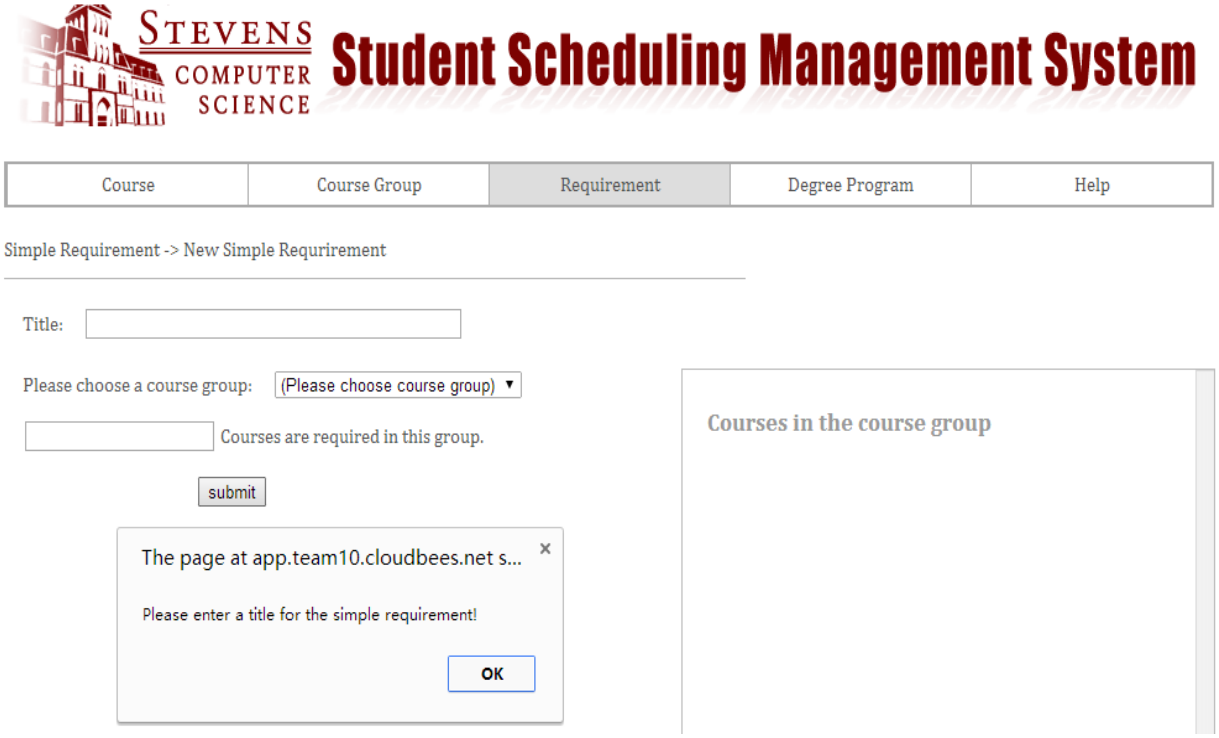


Figure 26

4.3 Note

- Courses to be added for initial tests are stated in the supporting document of "Demonstration Guideline".
- Initial version of system involves actual course and requirements data taken from Steven's Institute of Technology webpage.
- Administrators should get their authentication initials in person from system manager.
- There is no login info required for student side due to the fact that there is no personal information of students needed to build a study plan.