

# Graduation Progress Tool - Enhancing the portal of North Carolina State University

Angelyn Arputha Babu John<sup>\*1</sup>, Jordy Jose<sup>†2</sup>, Sameer Sharma<sup>‡3</sup>, and Stuti Nanda<sup>§4</sup>

<sup>1,2,3,4</sup> North Carolina State University, Raleigh, NC

January 31, 2016

## Abstract

*Software runs the world, but a small human error while using a software can bring one's world to standstill as well. The relevance of this statement can be understood by a student who drops a wrong subject by mistake or one who is not aware of course requirement and as a result has to delay the graduation by a semester. We, the students of North Carolina State University, have studied some of the common problems that every student faces with the existing tool. We propose to build a more efficient tool which will make this task of course selection and tracking students progress towards his or her goal a lot easier.*

## 1 Introduction

The idea of a portal is to help the viewer to navigate their way through different areas or services offered by an organization, similar to a main page. Portals provide a way for enterprises and organizations to give access control and procedures for multiple applications and databases, which otherwise would have been different web entities at various URLs. In essence, portals are useful entry-points to the content available. The features available may be restricted

by whether access is by an authorized and authenticated user or an anonymous site visitor. Universities around the world use portals to aid the students to follow their current academic, financial and personal informations. North Carolina State University (NCSU) uses the mypack portal to keep track of the courses of a particular student. The mypack Portal can be accessed either 'On Campus' or 'Off Campus' by going to the NCSU Website ([www.ncsu.edu](http://www.ncsu.edu)) and selecting the mypack portal button at the bottom of the page. The portal offers options to select the courses for the current semester along with the instructor information, holds that prevent the student from enrolling for the semester, alerts that should be payed attention. Once a student enters the portal, it shows the currents classes he is registered for the semester along with the schedule of the classes. It allows him to search and register for the courses. The portal provides several options to view the academic standings of the students which will be explained below

### 1.1 Course Selection

The mypack Portal provides an option to search and enroll for courses. The link takes the student to another page where the tentative class schedule is shown. 'Add to my cart' tab gives the means to add more courses to the currently enrolled list. The students can search for the course wanted with the required filters. The courses that match the search

---

<sup>\*</sup>ababujo@ncsu.edu

<sup>†</sup>jjose@ncsu.edu

<sup>‡</sup>ssharm20@ncsu.edu

<sup>§</sup>snanda@ncsu.edu

criteria are listed in order. The details include the instructor information and the number of credits it carries. It also shows the availability of the course. A student can register for a course even if it only has the 'waitlisted' option, but cannot do so if the registration is closed. One can also check if the requisites have been met before adding the course to the cart. All the selected courses are added to the cart. The student is enrolled in the courses if there is no error while the shopping cart is submitted, the listed courses are all successfully enrolled. The submission might bring up error in some cases. These errors arise due to the following reasons:

1. The requisite has not been met.
2. The course might need the approval of the Department.
3. The student is trying to exceed the credit limit for the semester.
4. The student is trying to register for a closed course.

One can drop selected courses from the enrolled list and also swap one of the courses with another selected course.

### 1.1.1 To Do List

The To Do list gives the catalog of all the required steps to taken for the major or courses registered. It lists the milestones to be met in the major. It varies with the student's course selection and the major he chose. The list also gives the date the items are due. The students in the Thesis track might have additional requisites in the To Do list for the graduation.

## 1.2 Holds

If a student is registering for a course in NCSU for the first time, he will receive an email from the office which will include detailed information and deadlines for on-campus course registration. It is the student's responsibility to email the academic advisor to release his advising hold. The student sends the advisor an email with a reminder that he is a new student, a list

of courses that he considering for registration, and a request to release the advising hold. The student might also have a hold if he fails to meet the credit requirement for the next semester.

## 1.3 Graduate Plan of Work

All graduate students can fill out their plan of work and Advisory Committee online through the Student Self Service in mypack Portal. The student can create his own plan of work and advisory committee for any major academic plan in which he is activated. The student may begin working on his plan of work and advisory committee as soon as he matriculates and activates in the graduate career. The student may save in-progress work and submit it at a later date. He may make changes at any time up until submission. Once the student completes/submits the Plan of Work/Advisory Committee, an email invitation will be sent to each committee member asking them to access the plan of work through their Worklist in order to accept the student's invitation to serve and indicate their approval of the plan. Once all committee members have accepted membership and approved the plan it will go into a Worklist for the director of the corresponding graduate program to process. Directors of graduate programs and Graduate Services Coordinators do not have to wait on the full committee membership to indicate their acceptance and approval online before accessing and processing a plan of work created. They can access it at any time after the student saves it.

## 2 Problem Description

Lot of factors play role while coming up with a graduation plan. Students should keep all these factors in mind while selecting courses for the semester. But as these factors are large in number and varied in nature, this becomes a cumbersome task. To understand the problem we can consider a scenario where student decides to switch his or her stream of education after completing one semester in particular stream. As there are different criteria to be fulfilled for every stream. The student who has made such a

switch has to be aware of all the requirements that need to be fulfilled. In many cases this kind of switch can lead to disastrous results if ample attention is not paid earlier at the time of making the switch. As the student has already completed one semester and finished 9 credits it is possible that requirements of the new stream can not be fulfilled due to shortage of credits remaining.

We plan to come up with a tool that provide students with a more comprehensive picture of things that needs to be done in order to complete the degree requirements in the target timeframe. This can be an independent tool or a tool that builds on existing my-pack portal that targets to improve user experience at the same time providing a clearer and comprehensive understanding of where the student stands with respect to his or her graduation goal. Our target audience is the currently enrolled students in the university.

This tool can be seen as advising portal where a student can log in and enter the details to get a list of Things to Do in order to graduate on the target date. We plan to provide useful graduation information that is scattered at different sites at this moment in one place. This will aid students to select the subjects more efficiently and make sure that none of the requirements are left unattended. Our tool can be extended to provide suggestions to the students while selecting subjects for a particular semester after assessing the current position where student stands and the list of subjects being offered that semester. These suggestions are made as a result of careful examination of the data provided by the user and the constraints that need to be met. For an instance, many subjects have pre-requisite that needs to be fulfilled in order to enroll in these courses the suggestions made by the tool take care of these constraints while short-listing the subjects shown to the user. This tool can act as student advisor for the self-motivated students with clear goal in their mind.

### 3 Survey

Planning of graduation requires keeping track of a lot of information and constantly applying and up-

dating these information to make better decisions as described in the problem statement. It seems very obvious that a majority of these tasks can be handed over to computers which can do a better job and help humans make better decisions. However, it is important to gather more and more information surrounding the problem to substantiate these findings and to make sure that the problem identified is worth solving for.

#### 3.1 Data Collection Process

Surveys are a great means to gather information about what most people think about something. Hence, the team held brainstorming sessions and came up with a set of questionnaire for the survey. Since, the problem identified is majorly confronted by students, the target audience for the survey were students. It was an online survey and the results of the survey suggests that the problem exists. Majority of the students thinks that if the problem is addressed it would make their life much easier. Face to face interviews were also conducted with selective students. A total of 57 students responded to the survey out of which

- 21 were pursuing a bachelor's degree,
- 27 master's degree,
- 3 PhD degree (rest did not wanted to disclose their degree).

Moreover, the students were from different backgrounds. There were students from 30 different backgrounds like computer science, zoology, history, English etc. Hence, the diversity of the data was ensured.

#### 3.2 Results

Figure 1 depicts the survey response by students for questions related to planning of the courses for different semesters. Out of the survey respondents 28.1% do not plan the courses for each semester well in advance. Further, 24.6% responded that they are not aware of what courses are offered in which

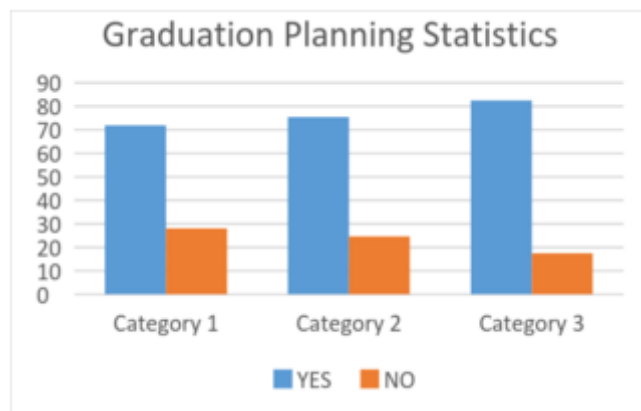


Figure 1: **Graduate Planning Statistics:**  
**Category 1:** Do you plan the courses for each semester well in advance?  
**Category 2:** Are you aware what courses are offered in which semester?  
**Category 3:** Do you consider pre-requisites for specific courses and plan your courses accordingly?

semester and 17.5% do not consider prerequisites for different courses while planning their courses.

Figure 2 depicts the survey response by students for questions related to course requirement for their corresponding degree. Out of the survey respondents 8.8% are not aware of their core/special course requirements and they do not consider these requirements while choosing courses for each semester. Further, 21.1% responded that they have by mistake enrolled to a course that was not adding to their degree requirement.

Figure 3 depicts the survey response by students for questions related to change of track during their graduation. Out of the survey respondents 31.6% responded that they changed their track in between. Out of the survey respondents who changed their track 48.5% had a change in course requirement and it affected the graduation plan of 27.3%.

Figure 4 depicts the survey response by stu-

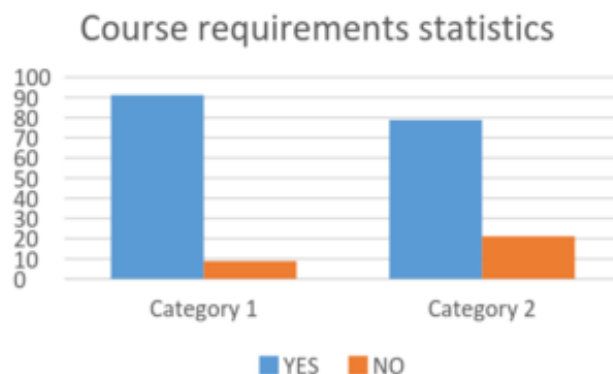


Figure 2: **Course Requirement Statistics:**  
**Category 1:** Do you keep in mind core courses or special courses requirement while choosing your courses?  
**Category 2:** Did you enroll to a course by mistake that was not adding to your degree requirement?

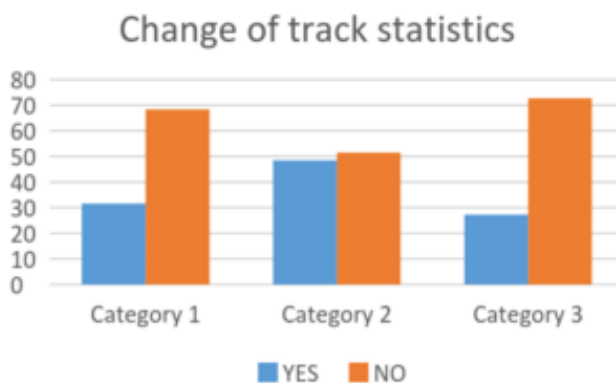


Figure 3: **Change of track Statistics:**  
**Category 1:** Have you ever changed your track? **Category 2:** If yes above, did your course requirement change after a change of your track?  
**Category 3:** If yes above, did it affect your graduation plan?

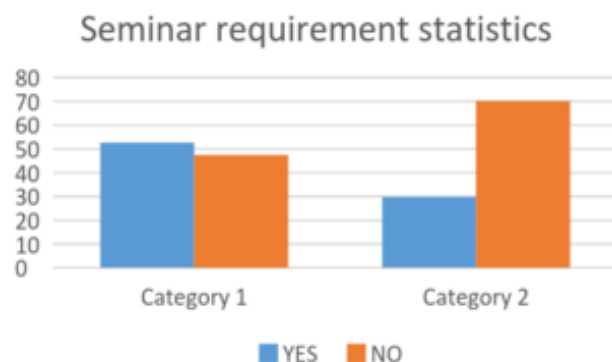


Figure 4: **Seminar Requirement Statistics:**  
**Category 1:** Are you aware of the seminar attendance requirement of your degree?  
**Category 2:** Do you know where to find information about the seminars you have attended?

dents for questions related to seminar attendance requirement for their degree. Out of the survey respondents 47.4% responded that they are not aware of the seminar attendance requirement for their degree and 70.2% do not even know where to find information about the seminars they have attended which adds to their graduation requirement.

Figure 5 depicts the survey response by students for questions related to certain miscellaneous requirements to be met in order to graduate. Out of the survey respondents 63.2% responded that they do not know how many Distance Education courses they can do. Further a 3.5% do not know the minimum number of courses to be enrolled for in order to gain a full time student status. A 36.8% do not know how many more credits are required for them to graduate without looking up and 28.1% do not know about the minimum GPA requirement.

Figure 6 depicts the survey response by students for questions related to current situation with regard to graduation planning. Out of the survey respondents 38.6% responded that it is not easy to find information about the different requirements mentioned above. Further, 49.1% thinks that it is

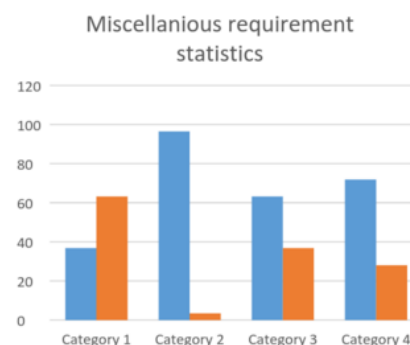


Figure 5: **Miscellaneous Requirement Statistics:**  
**Category 1:** Do you know how many distance education courses you can do?  
**Category 2:** Are you aware of the minimum number of courses to be enrolled for in order to gain full time student status?  
**Category 3:** Do you know how many more credits are required for you to graduate without performing the arithmetic?



Figure 6: **Current Situation Statistics:**  
**Category 1:** Is it easy to find the information about all the graduation requirements mentioned above easily?  
**Category 2:** Is it easy to keep track of all these requirements?  
**Category 3:** Is all the information available at a single place?

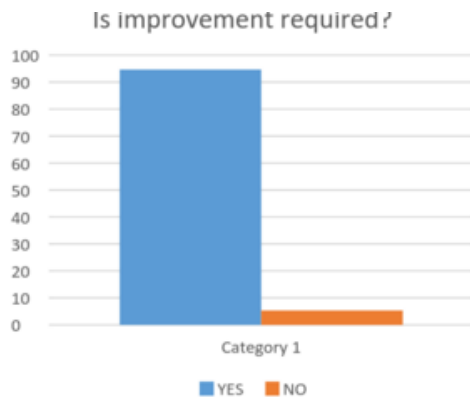


Figure 7: **Current Situation Statistics: Category 1: Will it be useful to have a tool that helps you plan your entire graduate program and enforce and reminds you about the different requirements to be met?**

difficult to keep track of all these requirements. A 29.8% think that the information is scattered.

Figure 7 depicts the survey response by students for the question, if they would prefer to have a tool which would help them with their graduation planning and reminds and enforce the different requirements they have to meet. Out of the survey respondents 94.7% thinks it would be good to have such a tool.

### 3.3 Suggestions from Students

Along with the survey, the students were also questioned about the difficulties they faced with the current portal if any, in their experience. Some of their experiences are listed below:

My freshman advisor made me take courses that were not at all required but said they were required. She forced me into classes that do not count on my degree audit

I initially didn't plan for my course requirements. Took courses I really wanted to do. Had a hard time in sem 3 trying to finish up my requirements.

I had planned to take Advanced Data Structures in the Spring semester, and it was very important for me to take it then. However, it was not offered and it ruined all my plans.

### 3.4 Analysis

The survey results are speaking for themselves, it needs no explanation. There are potential flaws in the manner many students plan their graduation. A lot of students plan their graduation in advance (evident from Diagram 1), but unfortunately they are not equipped with the right tools. With the use of the right tool their burden can be reduced considerably. Lot of students tend to forget about the course requirements. Out of the 57 students who responded to the survey, 12 students have by mistake enrolled to some course which do not add to their degree requirement. Mistakes like these can seriously affect the graduation plan of the student.

The case is not different with respect to other requirements such as seminar attendance, GPA, etc. Apparently there is a lot to keep track of and the information is scattered. As Diagram 7 rightly points out, it definitely makes sense to have a tool that helps you plan your entire graduate program and enforce and reminds you about the different requirements to be met. This would help student focus on more important things than worrying about planning their graduation. There will not be room for mistakes.

## 4 Sample Output

From the analysis of initial surveys and advanced surveys, it was very evident that a good portion of users find it difficult to access all the information through the existing portal/tool. Suggesting the feasible solutions would require one to look at the underlying problems and trying to overcome them.

### 4.1 Enhancements to existing tool

One of the solutions could be modifying the existing tool "mypack portal" to make it more user friendly.

This could be done by pursuing the following approach a. Instead of having the relevant information scattered, having all the links/ information within one page. These links could be organized according to relevance. That is, for a first time unity id users, like a new student, it would help them understand the concepts of core requirements, requirements of graduating a degree in terms of gpa or taking subjects, pursuing special tracks to get certificates other than the degree, and so on.

## 4.2 Recommender Website

Another solution is to create a website which requires the students to fill out certain details (Degree: MS, BS, PHD; Major: CS, ECE; specialization: Software Engineering track, Data Science Track; completing graduation in some number of semesters, etc.) and it in turns helps the students by suggesting the feasible graduation plan in terms of must do or could do. We could also provide options to the students to email themselves a copy of the plan. The beauty of this solution would be that the student does not necessarily have to commit to anything, say completing a course in a particular time limit, or doing a particular major. For example, students who are not sure if they will want to complete their masters in three semesters can mail themselves the two different plans.

## 4.3 Recommender and Tracker Website

We could create a website which would require each user to login. The aim of this website would be to let the user maintain their profile and let them track their progress in terms of seminars taken, core requirements completed etc. This website could also send out reminders on mobile/emails regarding certain updates so that the user keeps on track their graduate plan. This particular solution would be beneficial as the website would not just recommend but also keep a track of the courses taken up by the user, and they wouldn't unless they change their major/tracks etc re-enter the details of their subject as in above solution.

# 5 Conclusion

Our personal experience of the mypack portal gave us an idea of the drawbacks in the portal. We then did an extensive survey on the students using the portal to get an idea of the areas that can be improved. From the results obtained, we studied that there are scopes of improvement in the areas of course selection, meeting core subject requirements, shifting majors with ease and meeting the deadlines of each milestone in the major. Based on the studies, we conclude that there is a need for a tool which eases the student self service that might be used to update the student's academic information efficiently and without any confusion. Such a tool will be extremely useful for both a new incoming student to plan the entire course work and also for a current student to keep track of the milestones in his major.

# References

- [1] North Carolina State University,  
[www.ncsu.edu](http://www.ncsu.edu) *NCSU website*
- [2] Mypack Portal of NCSU,  
[www.mypack.ncsu.edu](http://www.mypack.ncsu.edu) *Student portal*