



National Society of Black Engineers®

***FRESHMAN RETENTION PROGRAM
PROGRAM STRUCTURE***

Version 1.0.



National Society of Black Engineers *Freshman Retention Program*

Recommended Structure of Programs

This section will outline the recommendations behind some of the basic programming operations. Because each Chapter is different and the program should be tailored to fit its Institutions specific needs, the recommendations are provided in a simplified, yet elaborate, bulleted format. Please refer to this section for the essentials, which together create the Freshman Retention Program. If your Chapter would like more assistance with developing the programmatic pieces, please contact a member of the National Programs Committee and they will be happy to assist you.

Problem Solving Seminars: Please refer to the objectives, goals, strategies, and metrics to understand what NSBE hopes to accomplish by implementing this component of the Freshman Retention Program. In moving forward, recognize that the problem solving seminars should be modeled after a form of Dr. Uri Treisman's Calculus Workshops from the University of California – Berkeley. However, recognize that the single most important difference is that the problem solving seminars will be made available for students by students.

- **Role of the Freshman:** Freshman participation in the Problem Solving Seminars is comparable to that of a student. The primary role of the freshman should be to learn and to understand the concepts behind the material presented in lectures.
- **Role of the Upperclassman:** The problem solving seminars are heavily dependent on upperclassmen involvement. Upperclassmen (and Graduate Students) should serve as the facilitators of the seminars: the individuals who not only tutor freshman in the core curriculum, but also build upon the importance of good study habits, enable students to understand their learning style, and to instill a sense of academic transparency.
- **Frequency of Events:** The problem solving seminars should take place at least once per week for approximately two (2) hours. To achieve the maximum benefit, facilitators should organize seminar content (syllabus, challenge problems, etc.) prior to the scheduled seminar meeting time. Many colleges and universities that have implemented a form of this program utilize more time for seminars; however, the size and scope of NSBE's model will allow facilitators to be more effective in a shorter amount of time.



➤ **Recommended Program Logistics:**

- To introduce freshman to the program, an orientation event should be held. The orientation event should bring together all freshman participants, gather a record of their academic schedule, and indicate which classes they will need assistance.
- To identify seminar groups, students should be randomly selected based on their indicated classes. Care should be taken to establish effective seminar groups (i.e., friends are not gathered into a single seminar group). An appropriate number for seminar groups is between six (6) and eight (8) students. Any number greater than eight will not be effective for the student-run model. For graduate student facilitators, additional participants may be a possibility. An example participant form is provided in the form section below.
- In identifying seminar facilitators, upperclassmen and graduate students should have received a satisfactory grade of B or higher in the subject that is being taught. If such a grade was not obtained in the class being taught, careful consideration should be given to determining whether the student is able to lead a seminar group. An example facilitator application form is provided in the forms section below.
- The date and time of the seminars should be based on participant and facilitator availability. Once seminar groups are established, facilitators should be informed and instructed to determine the meeting day, time, and place for the remainder of the term (e.g., if all students are available on Sundays at 6pm, then the seminar should be scheduled at that time). Please utilize a formal system for booking a space for the scheduled seminars.
- To avoid dates and times that conflict with other major activities, the meetings scheduled for the entire term should be determined and agreed upon at the first seminar group meeting.
- An attendance record of all seminars should be kept, which will be used to determine participant eligibility for the scholarship awards. The National Programs Committee will be using the honor code system for the reported attendance of seminar groups. Students are required to miss no more than two (2) seminar meetings or no more than fifteen percent (15%) of the total meetings over the course of the program, whichever is smaller. Any student who does not meet the criteria shall not be considered for the National Awards. Make-up meetings can and should be determined and indicated by the seminar facilitator.



- Seminar challenge problems should be selected because they are not routine problems that come from lecture or the course textbook. Careful consideration should be given to identifying problems that address the concepts in depth. Recall that the ultimate goal of the seminar is to take problems and present them to participants in a way that helps them to understand the concepts themselves.
- To achieve the goal of providing students with the necessary tools to work together in a group and understand concepts in depth, facilitators should present challenge problems in such a way that addresses the approach to solving problems rather than the routine process of solving problems.
- At the beginning of each seminar, facilitators should perform check-ins with seminar participants. Check-ins should require students to indicate their homework scores, exam scores, and other relevant data from their classes. The check-in process is meant to develop academic transparency and assist students in identifying when they need help. Check-ins should also be used to explain the importance of the class average and standard deviation. Facilitators should then use this information to gauge how material is presented to seminar participants. NSBE World Headquarters staff will use this information for the sole purpose of confirming the success of the program over the course of the academic term. Please refer to the privacy clause of grade submissions for more details on the purpose of this information.

Skill Development Workshops: Please refer to the objectives, goals, strategies, and metrics to understand what NSBE hopes to accomplish by implementing this component of the Freshman Retention Program.

- **Role of the Freshman:** Freshman participation in the Skill Development Workshops is comparable to that of an individual engaged in personal development. The primary role of the freshman should be to learn and to understand the necessary skills to be successful in the realm of applied sciences and engineering in higher education.
- **Role of the Upperclassman:** The skill development workshops are not dependent on any one particular body of individuals. Upperclassmen, Graduate Students, Faculty, Staff, and Corporate Representatives can all serve as the facilitator of any particular workshop. Upperclassman are, however, responsible for ensuring that freshman understand the skills that are presented to them during each workshop.
- **Frequency of Events:** The recommended frequency of the skill development workshops is at least once per month. If a different calendar system would like to be utilized for the frequency of skill



development workshops, please try to accommodate for at least eight (8) workshops over the course of the academic year.

➤ **Recommended Program Logistics:**

- Skill development workshops should be scheduled alongside the Chapter's programs calendar. To ensure the most effective calendar, distribution to Chapter members should take place at the earliest possible time. We recommend setting the calendar prior to the start of the term.
- The first skill development workshop should be a "light" topic, something that helps freshmen to develop but also assist with introductions and community building. Our recommendation is to begin with discussion on the topic of personal identity and utilize the opportunity to introduce academic resources available at the respective Institutions.
- In identifying workshop facilitators, we recommend using a hierarchal structure: readily accessible individuals should be contacts first (e.g., Institutional Faculty, Staff, and Administrators), Chapter specific corporate sponsors should be contacted second for in-kind support directed towards leading development workshops, and lastly successful students should be utilized to provide their experiences to incoming freshman.
- The date and time of the workshops should be arranged such that they are convenient as it relates to membership involvement. To combat apathy, it may be most effective if general body meetings were often catered as skill development workshops. The actual implementation of the skill development workshops will very greatly from Chapter to Chapter.
- An attendance record of all workshops should be kept, which will be used to determine participant and facilitator eligibility for the scholarship awards. The National Programs Committee will be using the honor code system for the reported attendance of seminar groups. Because the schedule will very from Chapter to Chapter, students are required to miss no more than two (2) seminar meetings or no more than fifteen percent (15%) of the total meetings over the course of the program, whichever is smaller. Any student who does not meet the criteria shall not be considered for the National Awards. Make-up meetings will not be accepted for the skill development workshops.
- To achieve the goal of ensuring a sense of identity that allows students to co-exist in a diverse setting, we recommend that there be at least one (1) workshop specifically designed to help students



recognize who they are, where they fit in amongst the college community, and what they hope to accomplish during college.

- To achieve the goal of ensuring the students are able to identify what is important for successful completion of their academic courses and what can distract them from achieving success, we recommend that there be at least one (1) workshop specifically designed to provide students with an appropriate four year plan and at least one (1) workshop specifically designed to serve as a student panel that elaborates on prior experiences in the academic environments.
- Workshop topics that can be implemented as a part of the skill development workshops include, but are not limited to,
 - *Operating According to the Plan: a Systematic Approach to Being an Effective Student*; a workshop designed to establish the importance of having a planned process to homework completion, study groups, exam preparation, etc.
 - *Put First Things First: Understanding the Difference Between Urgent and Important (Reference to Stephen Covey)*; a workshop designed to explain how a student should prioritize academics, relationships, social experiences, etc.
 - *The 3 S's: Sleep, Study, and Socialize – Can I Balance All Three and Still Succeed*; a workshop designed the assist students in having a balanced educational experience by tying in the need for adequate sleep, effective study habits, and the occasional social outlets.
 - *4 Year Planning Seminar*; a workshop designed to provide students with an opportunity to have round-table discussions with their peers regarding their major, the required coursework, and any additional details necessary to develop a schedule for completing the college curriculum within four years (Reference to Chocolate City @ MIT).
 - *Staying Motivated through Goal-Setting: Begin with the End in Mind (Reference to Stephen Covey)*; a workshop designed to help students understand who they want to be, what they dream of becoming, and how to develop a personal vision.

Mentorship Program: Please refer to the objectives, goals, strategies, and metrics to understand what NSBE hopes to accomplish by implementing this component of the Freshman Retention Program. The mentorship program is expected to be the most time consuming piece of the entire program



due to the time commitment that is required in a mentor-protégé relationship.

- **Role of the Protégé (Freshman):** Successful mentor-protégé relationships are not solely based on to characteristics of the mentor, but are also based on the character of the protégé (the freshman). A protégé should have an eagerness to learn and advance--they should be open to learning new skills and abilities and how to apply them; should be willing to put the time and effort into developing the mentor-protégé relationship--they should recognize that personal development does not happen overnight; and should also remember to keep a positive attitude--a protégé must always be ready to tackle difficulties and should not be afraid of not succeeding. Operationally, a protégé should keep in constant contact with their mentor, should be proactive about establishing the mentor connection, and should always be open-minded.
- **Role of the Mentor:** There are several different characteristics that can be required of a mentor, depending on the needs of the protégé. The type of characteristics can be identified based on the type of relationship the mentor will need to build with the protégé. It is the responsibility of the mentor to make sure meetings take place with the protégé. Operationally, a mentor should be a good motivator for the protégé, should serve as an advisor both academically and socially, and should be able to give the protégé insight into the academic Institution and its surrounding environment. Many mentorship programs are successful at establishing the expectations of the program, identifying the mentor-protégé pairs, and providing large-scale events; however, these programs are met with difficulty in the execution and follow-through of the mentors.
- **Frequency of Events:** The mentor and protégé should have meetings (lunch meetings, dinner meetings, social outings, etc.) that take place at least once per week for approximately one (1) hour. To achieve the maximum benefit, mentors should organize the topics discussed during the meetings (academia, student involvement, leadership, etc.) prior to the scheduled meeting time. In addition to individual mentor-protégé meetings, there are benefits to having large-scale events during the academic year that bring together all mentor-protégé pairs. The large-scale events should occur at least twice per term--once in the beginning and once near its conclusion.
- **Recommended Program Logistics:**
 - To introduce mentors and protégés to the program, a special event *does not have to* take place. Introduction of the program can come forth during a previously scheduled NSBE event (general body meeting, recruiting event, etc.). Interests in the



program should be established prior to having a meeting with mentors and protégés.

- To identify mentors, a form should be utilized that gathers information, which includes their major, career goals, academic and social interests, and any other relevant information that you may find relevant to identifying a mentor. An example form is provided in the forms section for your convenience.
- To identify protégés, a form should be utilized that gathers information, which includes similar information as the mentor form, but focuses more academic and social interests. Mentors tend to be more limiting, seeing as they have sometimes already established a career path. On the contrary, protégés are typically in the process of identifying their goals. An example form is provided in the forms section for your convenience.
- The date and time of the large-scale mentor-protégé meetings should be based on the general understood availability of students at the respective Institutions. They should also be arranged such that they are convenient as it relates to member involvement. The pairs themselves should establish mentor-protégé meetings; however, the Chapter leadership should ensure that those meetings frequently occur.
- An attendance record of both the large-scale mentor-protégé meetings and the individual pair meetings should be kept, which will be used in conjunction with mentor and protégé reviews to determine eligibility for the scholarship wards. The National Programs Committee will be using the honor code system for the reported attendance of mentor-protégé meetings. Mentors and protégés are to attend all large-scale events and meet at least eight (8) times during each term.
- To achieve the goal of providing guidance, support, and encouragement to first-year students, there shall be careful consideration of mentor-protégé pairs and mentors should understand the different characteristics of a mentor and the importance of frequently interacting with their protégé.
- To achieve the goal of allowing students to make a connection that will help them achieve their goals throughout the entire college experience, mentors should recognize that the relationship should be more than a simple, "how are you doing?" Time should be given to help guide the student and to assist the student beyond the enlisted duration of the program.



- To achieve the goal of providing a sense of community between the different grade levels, it is important that the program point of contact establish a wide variation of mentor-protégé pairs. Refrain from primarily utilizing a single class to serve as the mentors for protégés. Some may find it useful to create mentor-protégé groups where each mentor exhibits a different role in the mentor-protégé relationship.
- Some characteristics and responsibilities of a mentor are noted below and should be explained to all mentors who would like to take part in the program. Those characteristics include, but are not limited to:
 - *Advisor:* The role of the advisor is to help the protégé develop their personal goals, to help identify their personal interests, and to assist in defining their future aspirations. It is often the case that the lack of a clearly defined career goal leads to a misunderstanding of the engineering curriculum and a lack of interest to continue to pursue engineering. By providing an opportunity for the protégé to set their career goals, the mentor can be very successful in retaining the student in engineering.
 - *Counselor:* The role of the counselor is to help the protégé develop the confidence necessary to be a successful student. This role is heavily dependent on the trust that is established between the mentor and protégé. Promoting confidence most often stems from an open relationship where the mentor shows respect to, listens to, and engages in a protégé's thoughts and feelings. However, the protégé should not be allowed to reach a point where they are dependent upon the mentor for a solution to all their problems.
 - *Motivator:* The motivator is the most important responsibility of the mentor. Many times, the lack of progression in students comes from a lack of motivation to continue to push through the rigorous engineering curriculum. It is of the utmost importance that the mentor generates motivation within the protégé. The best way to generate motivation is to consistently provide the protégé with positive feedback as they work towards their goals.
 - *Role Model:* The role model is the most important characteristic of the mentor. It is important to note that a mentor should be an example of the ideals, character, and principles of a successful student. It is always common to say, "lead by example." When it comes to the mentor-protégé relationship, it is always beneficial if the protégé strives to be as successful as the mentor. It is always best if the protégé has the opportunity to learn by simply



observing the mentor. If the mentor does not exude all the qualities of a good role model, then it is important that the mentor provide the protégé with other opportunities that will introduce them to those good qualities.

- *Teacher:* The role of the teacher is to take the time to identify what prior knowledge and skills the protégé has before they begin their journey through higher education. Using that knowledge, the teacher is able to “teach” the student those necessary skills and provide the knowledge that will help them to be successful. Assigning tasks and frequently examining the work of the protégé is one way of helping them to develop those skills. Also, always try to answer any questions your protégé may have.



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Problem Solving Seminar -- Facilitator Application

Date: _____ Chapter Code: _____

Chapter: _____

Last Name: _____ First Name: _____ MI _____
(PRINT NAME IN FULL)

Telephone No. () - _____ E-Mail Address: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Degree Sought: _____ Major: _____

Please check the classes that you would like to facilitate as a part of the Problem Solving Seminars component of the NSBE Freshman Retention Program.

☐ Calculus ☐ Physics ☐ Chemistry ☐ Other

If other, please specify: _____

Please include the following information from two references. In the address field, please list the referrer's location on campus. In the association field, please indicate whether the individual is Faculty, Staff, or a Teaching Assistant.

	Name:	Address:	Association:	E-Mail Address:
<u>1</u>				
<u>2</u>				

Please list the relevant course(s) completed for the facilitator position that you seek.

	Course:	Grade:	Instructor:	Term/Year:
<u>1</u>				
<u>2</u>				
<u>3</u>				
<u>4</u>				
<u>5</u>				

I certify that the information given on this application is true and correct. I understand that any false information and/or willful or negligent failure to disclose any requested information would constitute the termination of my application.

Student Signature _____

Date _____



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Problem Solving Seminar -- Student Application

Date: _____ Chapter Code: _____

Chapter: _____

Last Name: _____ First Name: _____ MI _____
(PRINT NAME IN FULL)

Telephone No. () - _____ E-Mail Address: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Degree Sought: _____ Major: _____

Please check the classes that you would like to participate in as a part of the Problem Solving Seminars component of the NSBE Freshman Retention Program.

☐ Calculus ☐ Physics ☐ Chemistry ☐ Other

Please provide the class name and number (where applicable)

1 _____

2 _____

3 _____

If other, please specify: _____

Please provide the following educational information prior to attending this Institution.

High School: _____ City/State: _____

Graduation Date: _____ GPA: _____

What assessment tests have you taken?

☐ ACT ☐ SAT
Composite Score: _____ Composite Score: _____

I certify that the information given on this application is true and correct. I understand that any false information and/or willful or negligent failure to disclose any requested information would constitute the termination of my application.

Student Signature

Date



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Mentorship Program -- Mentor Application

Date: _____ Chapter Code: _____

Chapter: _____

Last Name: _____ First Name: _____ MI _____
(PRINT NAME IN FULL)

Telephone No. () - _____ E-Mail Address: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Degree Sought: _____ Major: _____

Please provide answers to the following questions. If more space is needed, please utilize the back of this application.

1 What campus activities/clubs are you involved in outside of NSBE?

2 What are your future career interests? Where do you envision yourself ten years from now?

3 What characteristics do you possess that you think would make you a good mentor?

4 What do you hope to accomplish and/or gain from serving as a mentor?

5 Do you have any constraints that would prohibit you from interacting with your protégé?



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Mentorship Program – Protégé Application

Date: _____ Chapter Code: _____

Chapter: _____

Last Name: _____ First Name: _____ MI _____
(PRINT NAME IN FULL)

Telephone No. () - _____ E-Mail Address: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Degree Sought: _____ Major: _____

Please provide answers to the following questions. If more space is needed, please utilize the back of this application.

1 What campus activities/clubs are you looking to get involved in outside of NSBE?

2 What are your future career interests? Where do you envision yourself ten years from now?

3 What do you do in your free time? (List any hobbies and interests that you have.)

4 Describe three or more characteristics that you would like your mentor to possess.

5 Do you have any constraints that would prohibit you from interacting with your mentor?
