



To: Dr. Charles Johns
From: Rosanne Williamson
Re: New Course Proposals
Date: January 13, 2020

Recommendation:

I recommend that new courses be presented for Board discussion on Monday, January 13, 2020, and that action on this item occurs no later than the Monday, January 27, 2020 Board meeting.

Process:

New courses and curricular changes have been thoroughly discussed in each building by relevant departmental and building-level committees, Instructional Supervisors, Associate Principals, and building principals. District-level administrators have also reviewed these proposals. The Board will note that they seek to meet the academic needs and interests of students in keeping with a comprehensive high school program. New course proposals, which may require additional FTE, will be covered within the building's authorized FTE allocation.

Building administrators who were closely involved in the development of these proposals will be available at the Board meeting on January 13, 2020, to address questions from the Board.

Board Policy: Curriculum Planning Strategy 7010 (procedures) is included in the packet so that Board members who wish to review our required timelines and forms concerning our process for new course approvals may do so.

Board Policy 7010 and its procedures identify not only the process for how proposals shall be submitted for Board approval but also explains what happens after they are implemented as administrators evaluate the success of the change, reporting back to the Board "no later than the end of the third semester that the course is offered." This third-semester follow-up evaluation of previously approved new courses will be contained in curriculum reports presented at a future Board meeting.

To: Dr. Charles Johns, Dr. Rosanne Williamson
From: Dr. Ed Solis
Cc: Dr. John Finan
Re: Curriculum and Course Adoption Proposals
Date: November 2019

Glenbrook North High School
Curriculum and Course Adoption Proposals for 2020-2021

The Glenbrook North Instructional Leadership Team met on December 3 and agreed to recommend the following new course proposals and curricular changes for your approval. In addition, GBN's Curriculum Council reviewed and approved these proposals on November 21. These courses/changes meet with the approval of the principal and both associate principals. Please let me know if you have any additional questions.

Glenbrook North proposes the addition of these new courses:

Course Proposal	Course Title	Rationale	Impact on Budget, FTE, Facilities	Evaluation
New Science Course	AP Physics 1	When we evaluate the current equity in and access to courses offered in our school, the majority of our students do not have the ability to enroll in an AP Physics course as they do not have the rigorous math requirement associated with AP Physics C. In light of this, we propose AP Physics 1, offered parallel to AP Physics C, as a second-year course option for our students. Doing so will allow all students who have taken physics the opportunity to continue their coursework in physics at the advanced placement level. Offering AP Physics 1 will allow all students to further explore their interest in physics, will set them up for success by having the necessary math skills, and will provide a solid STEM foundation that can be beneficial regardless of what educational path they choose.	We anticipate supporting this offering with existing staff and working within our existing facilities.	Our goal is that at least 50% of students enrolled are students who have taken most of their previous science coursework at the Studies or Standard at GBS and Introduction or Regular levels at GBN. We will be able to see if this has been achieved.

APPLICATION FOR CURRICULAR CHANGE

School: GBS & GBN **Department:** Science

Date: Fall 2019

Name of proposed curricular change: AP Physics 1

1. **Brief description of the curricular change:**

GBS and GBN Science would like to submit a joint proposal to offer AP Physics 1 as a second-year physics course having a prerequisite of any first year physics course and any geometry course or higher. AP Physics 1 is an algebra-based, College Board-sponsored Advanced Placement course which is different from AP Physics C, the calculus-based physics course that we currently offer. Like AP Environmental Science, we are proposing AP Physics 1 as a single block AP science course.

As we strive for equity and access to AP offerings in science, we have recognized that our general student population can potentially enroll in AP Biology, AP Chemistry, or AP Environmental Science. Because of the calculus-based nature of AP Physics C, we require a pre- or corequisite of calculus. As such, AP Physics C is a course that is accessible to only about one third of our student population as a corequisite and well below 10% of our student population as a prerequisite. Offering AP Physics 1 would provide accessibility to an AP physics course to our general student population.

2. **Curriculum Planning Committee Membership**

- a) List the members of the committee.

Laura Jane Elgass, GBS - authored proposal
Jeff Rylander, GBS - authored proposal
Mary Rockrohr - proposal collaborator
GBS & GBN Physics Curricular Teams - consultation

- b) Give the rationale for the membership of this committee.

Laura Jane Elgass teaches the AP Physics C and Physics Studies 163 at GBS; Jeff Rylander teaches physics at GBS and serves as the Instructional Supervisor for Science. Because this is a joint proposal, Mary Rockrohr collaborated at appropriate times throughout the process. The curriculum teams at both schools were consulted throughout the process as well.

- c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.

N/A

3. Need for the curricular change:

a) Present and analyze data on student learning that point to a need for change.

- **Prerequisites of AP Physics C** - Approximately 35%-40% of Glenbrook students take calculus by the time they graduate, many taking this as a senior. While AP Physics C serves as a very valuable course for many of these students, such a percentage makes a second year physics course inaccessible to the majority of our students.

- **Prerequisites of AP Physics 1:**

Science: Students should have completed a year of physics (at any level) as a prerequisite for this course. Since over 90% of our students take physics as part of their science coursework, the vast majority of our students are eligible to enroll in this course by senior year.

Math: Per College Board's recommendation, the math prerequisite for this course is that students should have completed geometry and be taking or have taken Algebra 2. AP Physics 1 includes the use of trigonometric functions, solving a system of equations, and basic geometry. Since nearly all students in our school have taken Algebra 2 prior to their senior year, this provides true accessibility to an AP Physics course for the general student population.

b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

- **Local Districts:** Every local district (Highland Park/Deerfield, Maine, Niles, D211, D214, New Trier) in the area offers this course. As we seek to support our students' ability to have opportunities that are similar to those in neighboring districts, we desire to offer such accessibility as well.
- **Survey of current juniors and current AP Physics C students:** A recent survey suggests that we would be able to field one to two sections of AP Physics 1 at GBS for the 2020-2021 school year. At GBN, we anticipate one section for the 2020-21 school year. The survey suggests that most of these students would come from our non-honors population, primarily students who have completed Physics 163. We anticipate most of these students taking this course instead of a science elective with a small number of students taking this course instead of enrolling in AP Physics C.
- **Anecdotal:** During their first-year physics course, students (and parents of students) who do not have the math requirement to take AP Physics C have

expressed a desire to pursue additional physics in high school. We have thus far regretted not having a suitable second-year course for these students. AP Physics 1 could serve as an excellent stepping stone for students with a budding interest in majoring in STEM fields in college as they prepare for the increased rigor they will face at the university level.

- Equity and Access as a GBS Departmental Goal:*** Over the past decade, we have sought to intentionally and thoughtfully increase access to Advanced Placement courses in science. The below demonstrates our work in accomplishing this goal. While we are encouraged to have most of our seniors enrolled in a science elective, we still recognize that just over 1 in 10 students take an Advanced Placement course in science. Out of nearly 800 juniors at GBS last year, 26 of our junior students from Physics Studies 163 took an AP science course this year while only 7 students from Physics 163 enrolled in an AP science offering. Corresponding, most of the junior students in Physics Honors 173 took an AP science course. We see students who have taken our standard level science sequence as the primary audience for this course. While keeping the rigor of the AP expectations, our goal is to continue to make AP science courses more accessible to our general student population.

The below data illustrates the number of sections of each AP science course over the past decade at GBS.

AP Science Course	Number of Sections by School Year at GBS									
	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20
AP Biology	3	3	4	4	4	4	3	4	5	3
AP Chemistry	2	2	2	2	2	3	2	2	2	3
AP Env Science	1	1	1	1	2	3	4	6	7	6
AP Physics C	1	2	2	2	1	2	3	3	3	3
AP Physics 1										
Total	7	8	9	9	9	12	12	15	17	15

- Greater Equity in AP Offerings at GBS:*** While we engage in a departmental initiative to work towards ensuring that our current AP courses more accurately reflect the diversity of students at GBS (including AP Physics C), we feel that offering AP Physics 1 will help to improve representation in AP overall. There is currently a greater percentage of our Black/African-American and Latinx/Hispanic students in standard and studies level courses. The table below shows our current AP enrollment by ethnicity as compared to our overall school enrollment by ethnicity. One can see that our Black/African American and Latinx/Hispanic enrollment in AP science is lagging behind our school-wide percentages. Our goal will be to use this course, along with all our AP science offerings, as a vehicle to continue to achieve greater equity and access for all students.

AP Science Course	Percent of Course Enrollment at GBS					
	Asian	Black / African American	Hispanic / Latinx	Multiracial	White	Grand Total
AP Biology	35%	3%	3%	10%	49%	100%
AP Chemistry	49%	0%	1%	4%	46%	100%
AP Envrmnt Sci	23%	0%	8%	5%	65%	100%
AP Physics C	32%	0%	3%	0%	65%	100%
Overall AP Sci	32%	1%	5%	5%	58%	100%
School-wide Enrollment	18%	2%	13%	5%	62%	100%

- Access to AP Courses at GBN:** GBN Science has maintained the philosophy that all students should have access to AP courses assuming prerequisites have been met. Currently, AP Physics C is by nature an exclusive course. The course requires concurrent enrollment in or completion of calculus. As a result, all students do not have access to an AP Physics course. AP Physics 1 would provide AP Physics access to the vast majority of students.

The below data illustrates the number of sections of each AP science course over the past decade.

AP Science Course	Number of Sections by School Year at GBN									
	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20
AP Biology	2	2	2	2	2	2	2	2	2	2
AP Chemistry	2	2	2	2	2	2	3	2	2	3
AP Env Science	2	2	2	2	2	1	2	2	2	2
AP Physics C	2	2	2	2	1	2	1	2	2	2
AP Physics 1										
Total	8	8	8	8	7	7	8	8	8	9

4. Rationale for addressing the need through a curricular change:

- State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.

As referenced above, when we evaluate the current equity in and access to courses offered in our school, the majority of our students do not have the ability to enroll in an AP Physics course as they do not have the rigorous math requirement associated with AP Physics C. In light of this, we propose AP Physics 1, offered parallel to AP Physics C, as a second-year course option for our students. Doing

so will allow all students who have taken physics the opportunity to continue their coursework in physics at the advanced placement level. Offering AP Physics 1 will allow all students to further explore their interest in physics, will set them up for success by having the necessary math skills, and will provide a solid STEM foundation that can be beneficial regardless of what educational path they choose.

- b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.

Over the past two years, the district physics teams also considered the option of offering AP Physics 1 as a replacement for Physics Honors. While there is a possibility to move in this direction at some point in the future, at this time we believe such a move would not support the equity and access goals that are motivating our recommendation. We feel that our students enrolled in honors level science courses currently have ample access to AP science courses. Our desire is to support the inclusion and access of students who have taken Studies and Standard (at GBS) or Introduction and Regular (at GBN) level science courses in achieving at a very high level in an AP science course.

In light of the wellness focus at GBN, if the AP Physics 1 course replaced the Honors Physics course, the honors 11th graders would be forced to take an AP course. This is not ideal given the rest of the 11th graders' schedule.

- c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

We anticipate that this course may compete with some of our science electives--and to a very small degree with our current AP Physics C course enrollment, but will provide an opportunity for all students to take at least one AP science in their field of choice before graduating.

5. **Description of proposed change:**

- a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.

As mentioned above, our primary target group is senior students who are currently enrolled in our non-honors offerings. We anticipate being able to offer one to two sections of this course at GBS and one section at GBN during the 2020-21 school year.

- b) Provide a tentative outline of the proposed course or program.

The AP Physics 1 course can be best outlined by viewing the [Course at a Glance](#)

link provided at the College Board site.

6. **Implications of the proposed change:**

- a) What are the implications of this proposed change for staffing, facilities, and budget?

We anticipate supporting this offering with existing staff and working within our existing facilities. While much of the equipment needed for laboratory work is existing equipment, there may be a slight request for some supplies that are unique to this course's curriculum.

- b) What are the implications of this proposed change for other courses in the department and for other departments in the school?

At GBS, we do not anticipate this impacting offerings in other departments. This could result in a small fluctuation in course enrollment in other senior year science electives and AP courses.

At GBN, the department may see a small decrease in enrollment in the AP Chemistry and Honors Astronomy courses.

- c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?

As we have done in the past when a science teacher teaches an AP course for the first time, we will encourage the instructor to attend a week-long AP Physics 1 workshop offered by the College Board. We also anticipate a summer curriculum project.

7. **Method of evaluating the success of the proposal after it is implemented:**

- a) If the proposal is approved and implemented, how shall it be evaluated?

- **Equity at GBS:** Our goal is that the make-up of this course will closely match our school-wide population. Simple data analysis will suggest whether or not this goal has been achieved.
- **Access:** Our goal is that at least 50% of students enrolled are students who have taken most of their previous science coursework at the Studies or Standard at GBS and Introduction or Regular levels at GBN. We will be able to see if this has been achieved.

- b) What specific outcomes shall indicate success of the implemented proposal?

Our goal is that all students will have the opportunity to take an Advanced Placement science course in the science field of their choice prior to graduation.

To: Dr. Charles Johns; Dr. Rosanne Williamson
From: Cameron Muir
Cc: Dr. Lauren Fagel
Re: New Course Proposals
Date: November 28, 2019

The Glenbrook South Administration, with the approval of the Instructional Supervisor Council, recommends the following new course proposals for approval. These recommendations are supported by the Glenbrook South Instructional Supervisor Council who met on November 20. The following are the proposed curriculum and course adoptions for Glenbrook South. I am also attaching the new course proposal form for the three new courses.

I. Glenbrook South proposes the following new courses:

Department	Course Title	Rationale	Impact on FTE, Budget, or Facilities
Science	AP Physics 1	The addition of AP Physics 1 is consistent with many area districts, will allow all students to have access to an AP Physics course, and is consistent with our departmental goal to support more students in taking an AP science course. Our current AP Physics C course is available to only a select set of students since students must have had or be currently enrolled in AP Calc.	None.
CTE	Small Engines	This course will allow students to build skills while exploring potential related career opportunities. Students will gain an understanding of the operation of piston engines, basic electrical circuits, hydraulic, and pneumatic principles with emphasis on small engine repair. There may be a need to purchase a few small engines in that case we will use grant funds, which will be allocated given our yearly process of identifying needs and opportunities within the department.	None

Mathematics	Advanced Data Structures and Algorithms	Increasingly, students are enrolling in APCS-A at a younger age, leaving them one or two years to take a subsequent course that builds on their experience (equivalent to the 2nd semester of CS in college). AP enrollment has increased. This course is currently offered at Glenbrook North. This course requires no additional software or hardware purchases.	None
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APPLICATION FOR CURRICULAR CHANGE

School: GBS & GBN **Department:** Science

Date: Fall 2019

Name of proposed curricular change: AP Physics 1

1. Brief description of the curricular change:

GBS and GBN Science would like to submit a joint proposal to offer AP Physics 1 as a second-year physics course having a prerequisite of any first year physics course and any geometry course or higher. AP Physics 1 is an algebra-based, College Board-sponsored Advanced Placement course which is different from AP Physics C, the calculus-based physics course that we currently offer. Like AP Environmental Science, we are proposing AP Physics 1 as a single block AP science course.

As we strive for equity and access to AP offerings in science, we have recognized that our general student population can potentially enroll in AP Biology, AP Chemistry, or AP Environmental Science. Because of the calculus-based nature of AP Physics C, we require a pre- or corequisite of calculus. As such, AP Physics C is a course that is accessible to only about one third of our student population as a corequisite and well below 10% of our student population as a prerequisite. Offering AP Physics 1 would provide accessibility to an AP physics course to our general student population.

2. Curriculum Planning Committee Membership

- a) List the members of the committee.

Laura Jane Elgass, GBS - authored proposal
Jeff Rylander, GBS - authored proposal
Mary Rockrohr - proposal collaborator
GBS & GBN Physics Curricular Teams - consultation

- b) Give the rationale for the membership of this committee.

Laura Jane Elgass teaches the AP Physics C and Physics Studies 163 at GBS; Jeff Rylander teaches physics at GBS and serves as the Instructional Supervisor for Science. Because this is a joint proposal, Mary Rockrohr collaborated at appropriate times throughout the process. The curriculum teams at both schools were consulted throughout the process as well.

- c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.

N/A

3. **Need for the curricular change:**

a) Present and analyze data on student learning that point to a need for change.

- **Prerequisites of AP Physics C** - Approximately 35%-40% of Glenbrook students take calculus by the time they graduate, many taking this as a senior. While AP Physics C serves as a very valuable course for many of these students, such a percentage makes a second year physics course inaccessible to the majority of our students.

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Math: Per College Board's recommendation, the math prerequisite for this course is that students should have completed geometry and be taking or have taken Algebra 2. AP Physics 1 includes the use of trigonometric functions, solving a system of equations, and basic geometry. Since nearly all students in our school have taken Algebra 2 prior to their senior year, this provides true accessibility to an AP Physics course for the general student population.

b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

- **Local Districts:** Every local district (Highland Park/Deerfield, Maine, Niles, D211, D214, New Trier) in the area offers this course. As we seek to support our students' ability to have opportunities that are similar to those in neighboring districts, we desire to offer such accessibility as well.
- **Survey of current juniors and current AP Physics C students:** A recent survey suggests that we would be able to field one to two sections of AP Physics 1 at GBS for the 2020-2021 school year. At GBN, we anticipate one section for the 2020-21 school year. The survey suggests that most of these students would come from our non-honors population, primarily students who have completed Physics 163. We anticipate most of these students taking this course instead of a science elective with a small number of students taking this course instead of enrolling in AP Physics C.
- **Anecdotal:** During their first-year physics course, students (and parents of students) who do not have the math requirement to take AP Physics C have

expressed a desire to pursue additional physics in high school. We have thus far regretted not having a suitable second-year course for these students. AP Physics 1 could serve as an excellent stepping stone for students with a budding interest in majoring in STEM fields in college as they prepare for the increased rigor they will face at the university level.

- Equity and Access as a GBS Departmental Goal:*** Over the past decade, we have sought to intentionally and thoughtfully increase access to Advanced Placement courses in science. The below demonstrates our work in accomplishing this goal. While we are encouraged to have most of our seniors enrolled in a science elective, we still recognize that just over 1 in 10 students take an Advanced Placement course in science. Out of nearly 800 juniors at GBS last year, 26 of our junior students from Physics Studies 163 took an AP science course this year while only 7 students from Physics 163 enrolled in an AP science offering. Corresponding, most of the junior students in Physics Honors 173 took an AP science course. We see students who have taken our standard level science sequence as the primary audience for this course. While keeping the rigor of the AP expectations, our goal is to continue to make AP science courses more accessible to our general student population.

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AP Physics C	1	2	2	2	1	2	3	3	3	3
AP Physics 1										
Total	7	8	9	9	9	12	12	15	17	15

- Greater Equity in AP Offerings at GBS:*** While we engage in a departmental initiative to work towards ensuring that our current AP courses more accurately reflect the diversity of students at GBS (including AP Physics C), we feel that offering AP Physics 1 will help to improve representation in AP overall. There is currently a greater percentage of our Black/African-American and Latinx/Hispanic students in standard and studies level courses. The table below shows our current AP enrollment by ethnicity as compared to our overall school enrollment by ethnicity. One can see that our Black/African American and Latinx/Hispanic enrollment in AP science is lagging behind our school-wide percentages. Our goal will be to use this course, along with all our AP science offerings, as a vehicle to continue to achieve greater equity and access for all students.

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Overall AP Sci	32%	1%	5%	5%	58%	100%
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- **Access to AP Courses at GBN:** GBN Science has maintained the philosophy that all students should have access to AP courses assuming prerequisites have been met. Currently, AP Physics C is by nature an exclusive course. The course requires concurrent enrollment in or completion of calculus. As a result, all students do not have access to an AP Physics course. AP Physics 1 would provide AP Physics access to the vast majority of students.

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AP Physics C	2	2	2	2	1	2	1	2	2	2
AP Physics 1										
Total	8	8	8	8	7	7	8	8	8	9

4. Rationale for addressing the need through a curricular change:

- a) State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.

As referenced above, when we evaluate the current equity in and access to courses offered in our school, the majority of our students do not have the ability to enroll in an AP Physics course as they do not have the rigorous math requirement associated with AP Physics C. In light of this, we propose AP Physics 1, offered parallel to AP Physics C, as a second-year course option for our students. Doing

so will allow all students who have taken physics the opportunity to continue their coursework in physics at the advanced placement level. Offering AP Physics 1 will allow all students to further explore their interest in physics, will set them up for success by having the necessary math skills, and will provide a solid STEM foundation that can be beneficial regardless of what educational path they choose.

- b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.

Over the past two years, the district physics teams also considered the option of offering AP Physics 1 as a replacement for Physics Honors. While there is a possibility to move in this direction at some point in the future, at this time we believe such a move would not support the equity and access goals that are motivating our recommendation. We feel that our students enrolled in honors level science courses currently have ample access to AP science courses. Our desire is to support the inclusion and access of students who have taken Studies and Standard (at GBS) or Introduction and Regular (at GBN) level science courses in achieving at a very high level in an AP science course.

In light of the wellness focus at GBN, if the AP Physics 1 course replaced the Honors Physics course, the honors 11th graders would be forced to take an AP course. This is not ideal given the rest of the 11th graders' schedule.

- c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

We anticipate that this course may compete with some of our science electives--and to a very small degree with our current AP Physics C course enrollment, but will provide an opportunity for all students to take at least one AP science in their field of choice before graduating.

5. **Description of proposed change:**

- a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.

As mentioned above, our primary target group is senior students who are currently enrolled in our non-honors offerings. We anticipate being able to offer one to two sections of this course at GBS and one section at GBN during the 2020-21 school year.

- b) Provide a tentative outline of the proposed course or program.

The AP Physics 1 course can be best outlined by viewing the [Course at a Glance](#)

link provided at the College Board site.

6. **Implications of the proposed change:**

- a) What are the implications of this proposed change for staffing, facilities, and budget?

We anticipate supporting this offering with existing staff and working within our existing facilities. While much of the equipment needed for laboratory work is existing equipment, there may be a slight request for some supplies that are unique to this course's curriculum.

- b) What are the implications of this proposed change for other courses in the department and for other departments in the school?

At GBS, we do not anticipate this impacting offerings in other departments. This could result in a small fluctuation in course enrollment in other senior year science electives and AP courses.

At GBN, the department may see a small decrease in enrollment in the AP Chemistry and Honors Astronomy courses.

- c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?

As we have done in the past when a science teacher teaches an AP course for the first time, we will encourage the instructor to attend a week-long AP Physics 1 workshop offered by the College Board. We also anticipate a summer curriculum project.

7. **Method of evaluating the success of the proposal after it is implemented:**

- a) If the proposal is approved and implemented, how shall it be evaluated?

- **Equity at GBS:** Our goal is that the make-up of this course will closely match our school-wide population. Simple data analysis will suggest whether or not this goal has been achieved.
- **Access:** Our goal is that at least 50% of students enrolled are students who have taken most of their previous science coursework at the Studies or Standard at GBS and Introduction or Regular levels at GBN. We will be able to see if this has been achieved.

- b) What specific outcomes shall indicate success of the implemented proposal?

Our goal is that all students will have the opportunity to take an Advanced Placement science course in the science field of their choice prior to graduation.

APPLICATION FOR CURRICULAR CHANGE

School: Glenbrook South **Department:** Career & Technical Education **Date:** 11/10/19

Name of proposed curricular change:

Small Engines 161 Semester course 9-12
Prerequisite for Advanced Automotive 263

1. Brief description of the curricular change:

This is an introductory automotive course with a focus on gasoline powered, 4-cycle engine operation, and the required maintenance of yard maintenance equipment. In this course, students will disassemble, inspect, measure and reassemble a small gasoline powered engine, and explore the subsystems involved in its operation. Students will troubleshoot issues relating to system performance, and will also be introduced to other maintenance items, outside of engine operation, required to keep machines running at peak performance all season long.

2. Curriculum Planning Committee Membership

- a) List the members of the committee.
Brad Klimkowski, Automotive Teacher and Dawn Hall, Instructional Supervisor
- b) Give the rationale for the membership of this committee.

Brad Klimkowski is the lead instructor for our automotive program and has previous experience teaching a small engines course at the high school level. Dawn Hall as Instructional Supervisor of Career and Technical Education in support of the course proposal process.

- c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.

Collaborated with Mary Kosirog, Instructional Supervisor of Career and Technical Education at Glenbrook North for input as their department has offered a small engines course in the past.

3. Need for the curricular change:

- a) Present and analyze data on student learning that point to a need for change.

Allows for a semester offering with content and application through a small engines curriculum that is unique to the current automotive sequence, and will allow students to build skills while exploring potential related career opportunities. Students will gain an understanding of the operation of piston engines, basic electrical circuits, hydraulic, and pneumatic principles with emphasis on small engine repair. Hands-on experience includes the opportunity to participate in the repair of a variety of small engines.

Automotive 161 is an introductory automotive course that serves primarily freshman but includes students of upper grade level and students of greatly varied automotive experience. It is a survey course introducing students to automotive systems, maintenance and evaluation on a consumer level. Small Engines 161 will provide an alternative for students to learn how engines and subsystems work in an individualized format as they disassemble and reassemble their small engine. For students with more experience, or potentially upper class students, the Small Engines 161 course will create an additional entry point.

Our evaluation of course offerings identified an opportunity for improved access for students to career and life skills in the automotive program given the varied student enrollment in grade level and automotive experience, and current semester course offerings. Architecture and Engineering sequences are all full year classes, while Woodworking 161 and 261, Computer-Aided-Design 161 and Automotive 161 are one semester. Computer-Aided-Design (CAD) 161 is offered in summer school and the majority of enrollment occurs outside of the school year as a preparation for students interested in architecture and engineering.

The second automotive course in the sequence Advanced Automotive 263 is a full year course geared toward more challenging topics and skillbuilding, and may be challenging to schedule and a daunting commitment.

or

- b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

Survey data from students in all grade levels of CTE courses representing engineering, woodworking and automotive courses identified significant interest in Small Engines 161. In addition, our students in advanced and vocational automotive sections in their third or fourth year in the program indicated very strong interest and a positive response to the course offering. We feel this positive response from the most experienced and engaged students in automotive courses is relevant to the process.

Survey Question: Would you be interested in taking a small engines course based on the description above:

9-11th Grade

62.7% - Yes and Maybe (29.4% yes absolutely)

18.6% - Yes but don't know if have space in schedule

18.6% - No

Survey delivered early in the semester; 161 students first class

Seniors

87.2% - Yes and Maybe (41% yes absolutely)

or

- c) Summarize opinions of experts (researchers, higher educational professionals, business people, parents, community members) who speak to a need for change.

4. **Rationale for addressing the need through a curricular change:**

- a) State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.

Typically, Glenbrook South students enrolling in automotive courses are looking for hands-on experiences to learn relevant skills for life.

Small Engines 161 will provide students a unique offering in their schedule that allows them to engage in authentic learning experiences and skill development.

- b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.

We did consider other alternatives but felt the Small Engines 161 course offered the most access for students in a format that encourages exploration and skillbuilding.

- c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

The new course will enhance the technology education course offerings and encourage students to explore and continue to build relevant skills.

5. **Description of proposed change:**

- a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.

Small Engines 161 is designed for students of all grade levels in a format that allows for individualized progress and challenge as they work on their own engine, creating a differentiated learning experience through pacing and individual feedback and instruction during work time. We predict a higher percentage of freshman and sophomore students.

There are typically four to five sections of Automotives 161 each year, and we expect many of the students to come from this pool of students. In addition, we would anticipate a percentage of students in other technology education courses such as woodworking, engineering, and computer-aided-design being interested in this skills-based course.

Approximate size of the target group is 430, based on average enrollment of 100-120 students in Automotives 161 each year, and 319 in woodworking, CAD 161, and engineering combined.

- b) Provide a tentative outline of the proposed course or program.

Course Outline

Unit 01	Tool & Lab Safety
Unit 02	Tools, Fasteners, Gaskets
Unit 03	Engine Construction & Performance
Unit 04	Fuel Systems
Unit 05	Ignition Systems
Unit 06	Lubrication and Cooling Systems
Unit 07	Engine Inspection, Disassembly and Reassembly
Unit 08	Preventive and Routine Maintenance

Student objectives

Upon the successful completion of this course the student will:

- Describe and model shop safety according to OSHA regulations.
- Identify various shop tools and display the proper use of them.
- Identify various measuring instruments and display proper use of them.
- Explain basic 4-cycle engine operation.
- Disassemble, clean, identify and reassemble basic small engine components and describe their functions.
- Understand the various types of fuels used in small engines.
- Identify and describe basic principles and all components involved in small engine ignition systems. Identify and describe lubrication systems.
- Identify and describe basic principles and all components involved in small engine cooling systems.
- Describe basic principles of small engine carburetor.
- Describe and perform preventive maintenance.

6. Implications of the proposed change:

- a) What are the implications of this proposed change for staffing, facilities, and budget?

No anticipated changes in staffing or facilities as enrollment is anticipated to come from existing pool of students who would typically enroll in technology education courses, and may simply shift where sections are created.

Current facilities will be utilized and grant funds will be allocated for instructional materials as part of our annual process in identifying needs and opportunities in the department to support learning and maintain equipment.

- b) What are the implications of this proposed change for other courses in the department and for other departments in the school?

May shift enrollment from other sections in technology education content area but not anticipating a significant shift. Could potentially impact other semester elective course offerings initially in terms of when students choose to take Small Engines but anticipate this being minimal, and potentially only impacting grade level enrollment based on when students choose to take the course.

- c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?

A curriculum project will be proposed to create, plan and prepare to deliver the course, including time to examine and prepare materials and resources for student use.

7. Method of evaluating the success of the proposal after it is implemented:

- a) If the proposal is approved and implemented, how shall it be evaluated?

The ultimate measure of success for an elective course is in enrollment by students who are choosing to commit a section in their schedule. Our goal would be to reach two sections of Small Engines 161, one each semester.

In addition, we would evaluate by student feedback through surveys to determine how they value the course, confidence rating in skills, and would they recommend the course. Additionally we would use performance measures for growth in skill development.

- b) What specific outcomes shall indicate success of the implemented proposal?

Measurable growth in student skills and confidence as well as student feedback that they would recommend the course and find it valuable.

A sustained enrollment of students in one to two sections each year and increase in retention of automotive students in terms of number of courses taken.

APPLICATION FOR CURRICULAR CHANGE

School: Glenbrook South

Department: Mathematics

Date: 09/23/2019

Name of proposed curricular change: Advanced Data Structures and Algorithms

1. Brief description of the curricular change:

This new course is a continuation of the AP Computer Science A course. It will be an honors-level course. It will serve as a capstone for our Computer Science offerings and will meet a growing demand and need for program expansion.

2. Curriculum Planning Committee Membership

- a) List the members of the committee.

Phil Gartner, David Rogers, (GBN: Steve Goodman)

- b) Give the rationale for the membership of this committee.

David and Steve are the AP Computer Science A teachers. Phil is the Math IS and has worked with David to move forward with this proposal.

- c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.

3. Need for the curricular change:

- a) Present and analyze data on student learning that point to a need for change.

or

- b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

Many students are completing AP CS A during their sophomore or junior years (24 out of 51 at GBS this year, 19 out of 35 at GBS last year) and many are looking for more computer science coding courses.

Many surrounding districts offer more courses in Computer Science beyond AP CS Principles and AP CS A (Deerfield/Highland Park, Stevenson, 211, 214, Lake Forest, and more). We need to be able to offer our students similar opportunities for growth and enrichment.

or

- c) Summarize opinions of experts (researchers, higher educational professionals, business people, parents, community members) who speak to a need for change.

4. **Rationale for addressing the need through a curricular change:**

- a) State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.

Adding this course to our curriculum gives students more opportunities and choice for computer science education. Students will develop skills to become more creative and powerful programmers.

- b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.

Some students have been continuing their computer science education by requesting independent studies. It would be best for students to be able to work with classmates and have a dedicated teacher with a set curriculum.

- c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

Students who have taken AP Computer Science Principles and AP Computer Science A will find this a next logical step.

5. **Description of proposed change:**

- a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.

Students who have completed AP Computer Science A before their senior year. At GBS this would be an estimated 25-30 students annually who could qualify to take the course, but of those, we would anticipate 15-20 taking the course, due to scheduling issues, other interests, etc. GBN has 27 students in this course for 2019-20.

- b) Provide a tentative outline of the proposed course or program.

Potential course description linked in sheet, column "C".

6. **Implications of the proposed change:**

- a) What are the implications of this proposed change for staffing, facilities, and budget?
There would likely be one section at GBS needing to use the laptops in 194, 198, or 607. Or, if the appropriate equipment were mobile, it could be taught in any classroom. At this time, running the programs on a standard Chromebook is problematic.

- b) What are the implications of this proposed change for other courses in the department and for other departments in the school?

As a math elective, this course would potentially draw some students away from AP Statistics or Advanced Topics.

- c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?

The teacher would need some summer curriculum work, and some summer workshop training, if available.

7. Method of evaluating the success of the proposal after it is implemented:

- a) If the proposal is approved and implemented, how shall it be evaluated?

If the students sign up for the course and enrollment stays consistent year over year, we will know we have an interesting and successful course. We can also monitor college preparedness and the number of students pursuing pathways in CS at the collegiate level.

- b) What specific outcomes shall indicate success of the implemented proposal?

Same as 7(a)

Section A - Introduction

These procedures, outlined below, are intended to facilitate the systematic processing of curriculum development proposals for making modifications in the instructional program of District #225. The curriculum shall be defined to consist of all courses of study offered by the district.

Modifying the curriculum shall be defined as:

1. Adding or deleting a course, an entire sequence of courses, or a program.
2. Significantly changing the goals of an existing course or program.

Decisions concerning the administrative operation of the curriculum shall not be subject to the curriculum planning strategy. Decisions concerning such items as the following shall be made by the appropriate administrative staff:

- 1) assignment of the instructional staff,
- 2) development of the master class schedule,
- 3) assignment of students to classes,
- 4) recommendations concerning instructional materials, subject to the provisions of Policy 7180: Instructional Materials,
- 5) changes in course or program titles,
- 6) utilization of facilities,
- 7) classroom methodology or individual teaching strategies,
- 8) use of new instructional technologies.

Section B - Procedures

1. Each instructional supervisor, in conjunction with the associate principal for instruction and the department staff, shall conduct an annual evaluation of approximately twenty percent (20%) of the department's courses and programs. It is the expectation that all courses within a department will be reviewed at least once during the five-year cycle. The courses and programs to be reviewed will be determined through a collaborative process involving the associate principals for instruction and instructional supervisors at both schools. This review will be used as a base for the Instructional Supervisor Curriculum Report.
2. The impetus for curriculum change may be such factors as, but not limited to, the following: a demonstrated need for learning outcomes not met by current curriculum; data on student learning; demographic data on students; professional expert advice from educational consultants or representatives of higher education; the conclusions of educational research. Upon seeing a curricular need, staff members, students, parents, and members of the community may submit ideas for curriculum changes to the instructional supervisor of the appropriate department. Principals also shall inform parents and members of the community about curricular issues and shall invite representatives to join curriculum planning committees when appropriate. Experts and consultants may be engaged to provide input to the process when deemed appropriately by the respective principals.
3. Upon receiving a suggested change in curriculum, the instructional supervisor may convene an ad hoc departmental curriculum planning committee to address the need for the curricular change. This curriculum planning committee, after studying the perceived need, may write a curriculum proposal. If the proposed change affects more than one department, the principal may convene an ad hoc interdisciplinary committee to address the perceived need.
4. The proposal of the departmental committee must include the need, the rationale, a description, and the implications of the curricular change, as well as a method of evaluating the success of the implemented proposal (Appendix B).
5. All proposals recommended by the departmental or interdisciplinary committees shall be reviewed by the building's instructional supervisors and principal. Accepted proposals shall be acted on successively by the principal, superintendent, and the Board.

The decision or recommendation of each of the above-listed individuals or groups shall be communicated in writing to the committee submitting the proposal. A timeline for the strategy is contained in Appendix A of these Procedures.

6. No proposal shall be implemented unless approved by the principal, the superintendent, and the Board. The instructional supervisors shall serve in an advisory function.
7. Each year proposals shall be submitted to the Board for approval as indicated in the timeline in Appendix A of these Procedures. Under extraordinary circumstances, the superintendent may authorize the submission of a proposal to the curriculum planning process or to the Board at any time during the year.
8. One year after the implementation of a curriculum change, the instructional supervisor and the designated administrator shall evaluate each proposal approved by the Board in order to determine whether the proposal was successful in meeting its goals and fulfilling the educational needs. A report of this evaluation, together with a recommendation as to the continuance or modification of the implemented change, shall be shared with the appropriate committee that had proposed the curriculum change and shall be submitted to the superintendent and the Board no later than the end of the third semester that the course is offered.

APPENDIX A

CURRICULUM PLANNING STRATEGY
ANNUAL TIMELINE *

<u>Deadline</u>	<u>Activity</u>
March 15 to August	Collaboration between instructional supervisors and principal or associate principal for instruction at both schools to review department curriculum in light of data on student learning and to consider curricular changes.
August to October	Instructional supervisors set up committees for suggested curricular changes. Committees meet, plan, elicit input from various constituencies, and write proposal applications.
By November 1	Curriculum planning committees submit applications for curriculum changes to the instructional supervisors.
By November 15	Instructional supervisors review proposals and submit recommendations to the principals.
By December 1	Principals accept or reject proposals and, if accepted, send them to the superintendent including any resource implications.
Prior to Winter Break	Superintendent accepts or rejects proposals and gives rationale for actions.
By February 1	Superintendent informs the Board of Education and submits accepted proposals for Board action.
By March 1	Instructional supervisors submit proposals for summer curriculum work to develop course outlines and instructional resources.

By March 15

Superintendent either approves the proposal for summer project and designates funding for summer curriculum project or rejects the proposal. Instructional Supervisor Curriculum Reports are due to the superintendent. These reports are based on curriculum review conducted or modifications made during the past year and identified curriculum directions for the ensuing year(s). The reports should also include an evaluation and recommendation for any course that has completed the third semester of implementation.

Note: Under extraordinary circumstances, the superintendent may authorize the submission of a proposal to the Board at any time during the year.

*** This timeline will be coordinated with but not limited by the district budget timeline process.**

APPENDIX B

APPLICATION FOR CURRICULAR CHANGE

School:

Department:

Date:

Name of proposed curricular change:

1. **Brief description** of the curricular change
2. **Curriculum Planning Committee Membership**
 - a) List the members of the committee.
 - b) Give the rationale for the membership of this committee.
 - c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.
3. **Need** for the curricular change:
 - a) Present and analyze data on student learning that point to a need for change.

or
 - b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

or
 - c) Summarize opinions of experts (researchers, higher educational professionals, business people, parents, community members) who speak to a need for change.
4. **Rationale** for addressing the need through a curricular change:
 - a) State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.
 - b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.
 - c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

APPENDIX B (Continued)

APPLICATION FOR CURRICULAR CHANGE

5. **Description** of proposed change:
 - a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.
 - b) Provide a tentative outline of the proposed course or program.
6. **Implications** of the proposed change:
 - a) What are the implications of this proposed change for staffing, facilities, and budget?
 - b) What are the implications of this proposed change for other courses in the department and for other departments in the school?
 - c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?
7. **Method of evaluating** the success of the proposal after it is implemented:
 - a) If the proposal is approved and implemented, how shall it be evaluated?
 - b) What specific outcomes shall indicate success of the implemented proposal?

Adopted: November 21, 1977
Revised: October 9, 1995
Revised: November 27, 2000
Revised: August 11, 2003

To: Dr. Charles Johns; Dr. Rosanne Williamson

From: Cameron Muir

Cc: Dr. Lauren Fagel

Re: New Course Proposals

Date: November 28, 2019

The Glenbrook South Administration, with the approval of the Instructional Supervisor Council, recommends the following new course proposals for approval. These recommendations are supported by the Glenbrook South Instructional Supervisor Council who met on November 20. The following are the proposed curriculum and course adoptions for Glenbrook South. I am also attaching the new course proposal form for the three new courses.

I. Glenbrook South proposes the following new courses:

Department	Course Title	Rationale	Impact on FTE, Budget, or Facilities
Science	AP Physics 1	The addition of AP Physics 1 is consistent with many area districts, will allow all students to have access to an AP Physics course, and is consistent with our departmental goal to support more students in taking an AP science course. Our current AP Physics C course is available to only a select set of students since students must have had or be currently enrolled in AP Calc.	None.
CTE	Small Engines	This course will allow students to build skills while exploring potential related career opportunities. Students will gain an understanding of the operation of piston engines, basic electrical circuits, hydraulic, and pneumatic principles with emphasis on small engine repair. There may be a need to purchase a few small engines in that case we will use grant funds, which will be allocated given our yearly process of identifying needs and opportunities within the department.	None

Mathematics	Advanced Data Structures and Algorithms	Increasingly, students are enrolling in APCS-A at a younger age, leaving them one or two years to take a subsequent course that builds on their experience (equivalent to the 2nd semester of CS in college). AP enrollment has increased. This course is currently offered at Glenbrook North. This course requires no additional software or hardware purchases.	None
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APPLICATION FOR CURRICULAR CHANGE

School: GBS & GBN **Department:** Science

Date: Fall 2019

Name of proposed curricular change: AP Physics 1

1. **Brief description of the curricular change:**

GBS and GBN Science would like to submit a joint proposal to offer AP Physics 1 as a second-year physics course having a prerequisite of any first year physics course and any geometry course or higher. AP Physics 1 is an algebra-based, College Board-sponsored Advanced Placement course which is different from AP Physics C, the calculus-based physics course that we currently offer. Like AP Environmental Science, we are proposing AP Physics 1 as a single block AP science course.

As we strive for equity and access to AP offerings in science, we have recognized that our general student population can potentially enroll in AP Biology, AP Chemistry, or AP Environmental Science. Because of the calculus-based nature of AP Physics C, we require a pre- or corequisite of calculus. As such, AP Physics C is a course that is accessible to only about one third of our student population as a corequisite and well below 10% of our student population as a prerequisite. Offering AP Physics 1 would provide accessibility to an AP physics course to our general student population.

2. **Curriculum Planning Committee Membership**

- a) List the members of the committee.

Laura Jane Elgass, GBS - authored proposal
Jeff Rylander, GBS - authored proposal
Mary Rockrohr - proposal collaborator
GBS & GBN Physics Curricular Teams - consultation

- b) Give the rationale for the membership of this committee.

Laura Jane Elgass teaches the AP Physics C and Physics Studies 163 at GBS; Jeff Rylander teaches physics at GBS and serves as the Instructional Supervisor for Science. Because this is a joint proposal, Mary Rockrohr collaborated at appropriate times throughout the process. The curriculum teams at both schools were consulted throughout the process as well.

- c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.

N/A

3. Need for the curricular change:

a) Present and analyze data on student learning that point to a need for change.

- **Prerequisites of AP Physics C** - Approximately 35%-40% of Glenbrook students take calculus by the time they graduate, many taking this as a senior. While AP Physics C serves as a very valuable course for many of these students, such a percentage makes a second year physics course inaccessible to the majority of our students.

- **Prerequisites of AP Physics 1:**

Science: Students should have completed a year of physics (at any level) as a prerequisite for this course. Since over 90% of our students take physics as part of their science coursework, the vast majority of our students are eligible to enroll in this course by senior year.

Math: Per College Board's recommendation, the math prerequisite for this course is that students should have completed geometry and be taking or have taken Algebra 2. AP Physics 1 includes the use of trigonometric functions, solving a system of equations, and basic geometry. Since nearly all students in our school have taken Algebra 2 prior to their senior year, this provides true accessibility to an AP Physics course for the general student population.

b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

- **Local Districts:** Every local district (Highland Park/Deerfield, Maine, Niles, D211, D214, New Trier) in the area offers this course. As we seek to support our students' ability to have opportunities that are similar to those in neighboring districts, we desire to offer such accessibility as well.
- **Survey of current juniors and current AP Physics C students:** A recent survey suggests that we would be able to field one to two sections of AP Physics 1 at GBS for the 2020-2021 school year. At GBN, we anticipate one section for the 2020-21 school year. The survey suggests that most of these students would come from our non-honors population, primarily students who have completed Physics 163. We anticipate most of these students taking this course instead of a science elective with a small number of students taking this course instead of enrolling in AP Physics C.
- **Anecdotal:** During their first-year physics course, students (and parents of students) who do not have the math requirement to take AP Physics C have

expressed a desire to pursue additional physics in high school. We have thus far regretted not having a suitable second-year course for these students. AP Physics 1 could serve as an excellent stepping stone for students with a budding interest in majoring in STEM fields in college as they prepare for the increased rigor they will face at the university level.

- Equity and Access as a GBS Departmental Goal:*** Over the past decade, we have sought to intentionally and thoughtfully increase access to Advanced Placement courses in science. The below demonstrates our work in accomplishing this goal. While we are encouraged to have most of our seniors enrolled in a science elective, we still recognize that just over 1 in 10 students take an Advanced Placement course in science. Out of nearly 800 juniors at GBS last year, 26 of our junior students from Physics Studies 163 took an AP science course this year while only 7 students from Physics 163 enrolled in an AP science offering. Corresponding, most of the junior students in Physics Honors 173 took an AP science course. We see students who have taken our standard level science sequence as the primary audience for this course. While keeping the rigor of the AP expectations, our goal is to continue to make AP science courses more accessible to our general student population.

The below data illustrates the number of sections of each AP science course over the past decade at GBS.

AP Science Course	Number of Sections by School Year at GBS									
	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20
AP Biology	3	3	4	4	4	4	3	4	5	3
AP Chemistry	2	2	2	2	2	3	2	2	2	3
AP Env Science	1	1	1	1	2	3	4	6	7	6
AP Physics C	1	2	2	2	1	2	3	3	3	3
AP Physics 1										
Total	7	8	9	9	9	12	12	15	17	15

- Greater Equity in AP Offerings at GBS:*** While we engage in a departmental initiative to work towards ensuring that our current AP courses more accurately reflect the diversity of students at GBS (including AP Physics C), we feel that offering AP Physics 1 will help to improve representation in AP overall. There is currently a greater percentage of our Black/African-American and Latinx/Hispanic students in standard and studies level courses. The table below shows our current AP enrollment by ethnicity as compared to our overall school enrollment by ethnicity. One can see that our Black/African American and Latinx/Hispanic enrollment in AP science is lagging behind our school-wide percentages. Our goal will be to use this course, along with all our AP science offerings, as a vehicle to continue to achieve greater equity and access for all students.

AP Science Course	Percent of Course Enrollment at GBS					
	Asian	Black / African American	Hispanic / Latinx	Multiracial	White	Grand Total
AP Biology	35%	3%	3%	10%	49%	100%
AP Chemistry	49%	0%	1%	4%	46%	100%
AP Envrmnt Sci	23%	0%	8%	5%	65%	100%
AP Physics C	32%	0%	3%	0%	65%	100%
Overall AP Sci	32%	1%	5%	5%	58%	100%
School-wide Enrollment	18%	2%	13%	5%	62%	100%

- Access to AP Courses at GBN:** GBN Science has maintained the philosophy that all students should have access to AP courses assuming prerequisites have been met. Currently, AP Physics C is by nature an exclusive course. The course requires concurrent enrollment in or completion of calculus. As a result, all students do not have access to an AP Physics course. AP Physics 1 would provide AP Physics access to the vast majority of students.

The below data illustrates the number of sections of each AP science course over the past decade.

AP Science Course	Number of Sections by School Year at GBN									
	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20
AP Biology	2	2	2	2	2	2	2	2	2	2
AP Chemistry	2	2	2	2	2	2	3	2	2	3
AP Env Science	2	2	2	2	2	1	2	2	2	2
AP Physics C	2	2	2	2	1	2	1	2	2	2
AP Physics 1										
Total	8	8	8	8	7	7	8	8	8	9

4. Rationale for addressing the need through a curricular change:

- State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.

As referenced above, when we evaluate the current equity in and access to courses offered in our school, the majority of our students do not have the ability to enroll in an AP Physics course as they do not have the rigorous math requirement associated with AP Physics C. In light of this, we propose AP Physics 1, offered parallel to AP Physics C, as a second-year course option for our students. Doing

so will allow all students who have taken physics the opportunity to continue their coursework in physics at the advanced placement level. Offering AP Physics 1 will allow all students to further explore their interest in physics, will set them up for success by having the necessary math skills, and will provide a solid STEM foundation that can be beneficial regardless of what educational path they choose.

- b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.

Over the past two years, the district physics teams also considered the option of offering AP Physics 1 as a replacement for Physics Honors. While there is a possibility to move in this direction at some point in the future, at this time we believe such a move would not support the equity and access goals that are motivating our recommendation. We feel that our students enrolled in honors level science courses currently have ample access to AP science courses. Our desire is to support the inclusion and access of students who have taken Studies and Standard (at GBS) or Introduction and Regular (at GBN) level science courses in achieving at a very high level in an AP science course.

In light of the wellness focus at GBN, if the AP Physics 1 course replaced the Honors Physics course, the honors 11th graders would be forced to take an AP course. This is not ideal given the rest of the 11th graders' schedule.

- c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

We anticipate that this course may compete with some of our science electives--and to a very small degree with our current AP Physics C course enrollment, but will provide an opportunity for all students to take at least one AP science in their field of choice before graduating.

5. **Description of proposed change:**

- a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.

As mentioned above, our primary target group is senior students who are currently enrolled in our non-honors offerings. We anticipate being able to offer one to two sections of this course at GBS and one section at GBN during the 2020-21 school year.

- b) Provide a tentative outline of the proposed course or program.

The AP Physics 1 course can be best outlined by viewing the [Course at a Glance](#)

link provided at the College Board site.

6. **Implications of the proposed change:**

- a) What are the implications of this proposed change for staffing, facilities, and budget?

We anticipate supporting this offering with existing staff and working within our existing facilities. While much of the equipment needed for laboratory work is existing equipment, there may be a slight request for some supplies that are unique to this course's curriculum.

- b) What are the implications of this proposed change for other courses in the department and for other departments in the school?

At GBS, we do not anticipate this impacting offerings in other departments. This could result in a small fluctuation in course enrollment in other senior year science electives and AP courses.

At GBN, the department may see a small decrease in enrollment in the AP Chemistry and Honors Astronomy courses.

- c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?

As we have done in the past when a science teacher teaches an AP course for the first time, we will encourage the instructor to attend a week-long AP Physics 1 workshop offered by the College Board. We also anticipate a summer curriculum project.

7. **Method of evaluating the success of the proposal after it is implemented:**

- a) If the proposal is approved and implemented, how shall it be evaluated?

- **Equity at GBS:** Our goal is that the make-up of this course will closely match our school-wide population. Simple data analysis will suggest whether or not this goal has been achieved.
- **Access:** Our goal is that at least 50% of students enrolled are students who have taken most of their previous science coursework at the Studies or Standard at GBS and Introduction or Regular levels at GBN. We will be able to see if this has been achieved.

- b) What specific outcomes shall indicate success of the implemented proposal?

Our goal is that all students will have the opportunity to take an Advanced Placement science course in the science field of their choice prior to graduation.

APPLICATION FOR CURRICULAR CHANGE

School: Glenbrook South **Department:** Career & Technical Education **Date:** 11/10/19

Name of proposed curricular change:

Small Engines 161 Semester course 9-12
Prerequisite for Advanced Automotive 263

1. Brief description of the curricular change:

This is an introductory automotive course with a focus on gasoline powered, 4-cycle engine operation, and the required maintenance of yard maintenance equipment. In this course, students will disassemble, inspect, measure and reassemble a small gasoline powered engine, and explore the subsystems involved in its operation. Students will troubleshoot issues relating to system performance, and will also be introduced to other maintenance items, outside of engine operation, required to keep machines running at peak performance all season long.

2. Curriculum Planning Committee Membership

- a) List the members of the committee.
Brad Klimkowski, Automotive Teacher and Dawn Hall, Instructional Supervisor
- b) Give the rationale for the membership of this committee.

Brad Klimkowski is the lead instructor for our automotive program and has previous experience teaching a small engines course at the high school level. Dawn Hall as Instructional Supervisor of Career and Technical Education in support of the course proposal process.

- c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.

Collaborated with Mary Kosirog, Instructional Supervisor of Career and Technical Education at Glenbrook North for input as their department has offered a small engines course in the past.

3. Need for the curricular change:

- a) Present and analyze data on student learning that point to a need for change.

Allows for a semester offering with content and application through a small engines curriculum that is unique to the current automotive sequence, and will allow students to build skills while exploring potential related career opportunities. Students will gain an understanding of the operation of piston engines, basic electrical circuits, hydraulic, and pneumatic principles with emphasis on small engine repair. Hands-on experience includes the opportunity to participate in the repair of a variety of small engines.

Automotive 161 is an introductory automotive course that serves primarily freshman but includes students of upper grade level and students of greatly varied automotive experience. It is a survey course introducing students to automotive systems, maintenance and evaluation on a consumer level. Small Engines 161 will provide an alternative for students to learn how engines and subsystems work in an individualized format as they disassemble and reassemble their small engine. For students with more experience, or potentially upper class students, the Small Engines 161 course will create an additional entry point.

Our evaluation of course offerings identified an opportunity for improved access for students to career and life skills in the automotive program given the varied student enrollment in grade level and automotive experience, and current semester course offerings. Architecture and Engineering sequences are all full year classes, while Woodworking 161 and 261, Computer-Aided-Design 161 and Automotive 161 are one semester. Computer-Aided-Design (CAD) 161 is offered in summer school and the majority of enrollment occurs outside of the school year as a preparation for students interested in architecture and engineering.

The second automotive course in the sequence Advanced Automotive 263 is a full year course geared toward more challenging topics and skillbuilding, and may be challenging to schedule and a daunting commitment.

or

- b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

Survey data from students in all grade levels of CTE courses representing engineering, woodworking and automotive courses identified significant interest in Small Engines 161. In addition, our students in advanced and vocational automotive sections in their third or fourth year in the program indicated very strong interest and a positive response to the course offering. We feel this positive response from the most experienced and engaged students in automotive courses is relevant to the process.

Survey Question: Would you be interested in taking a small engines course based on the description above:

9-11th Grade

62.7% - Yes and Maybe (29.4% yes absolutely)

18.6% - Yes but don't know if have space in schedule

18.6% - No

Survey delivered early in the semester; 161 students first class

Seniors

87.2% - Yes and Maybe (41% yes absolutely)

or

- c) Summarize opinions of experts (researchers, higher educational professionals, business people, parents, community members) who speak to a need for change.

4. **Rationale for addressing the need through a curricular change:**

- a) State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.

Typically, Glenbrook South students enrolling in automotive courses are looking for hands-on experiences to learn relevant skills for life.

Small Engines 161 will provide students a unique offering in their schedule that allows them to engage in authentic learning experiences and skill development.

- b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.

We did consider other alternatives but felt the Small Engines 161 course offered the most access for students in a format that encourages exploration and skillbuilding.

- c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

The new course will enhance the technology education course offerings and encourage students to explore and continue to build relevant skills.

5. **Description of proposed change:**

- a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.

Small Engines 161 is designed for students of all grade levels in a format that allows for individualized progress and challenge as they work on their own engine, creating a differentiated learning experience through pacing and individual feedback and instruction during work time. We predict a higher percentage of freshman and sophomore students.

There are typically four to five sections of Automotives 161 each year, and we expect many of the students to come from this pool of students. In addition, we would anticipate a percentage of students in other technology education courses such as woodworking, engineering, and computer-aided-design being interested in this skills-based course.

Approximate size of the target group is 430, based on average enrollment of 100-120 students in Automotives 161 each year, and 319 in woodworking, CAD 161, and engineering combined.

- b) Provide a tentative outline of the proposed course or program.

Course Outline

Unit 01	Tool & Lab Safety
Unit 02	Tools, Fasteners, Gaskets
Unit 03	Engine Construction & Performance
Unit 04	Fuel Systems
Unit 05	Ignition Systems
Unit 06	Lubrication and Cooling Systems
Unit 07	Engine Inspection, Disassembly and Reassembly
Unit 08	Preventive and Routine Maintenance

Student objectives

Upon the successful completion of this course the student will:

- Describe and model shop safety according to OSHA regulations.
- Identify various shop tools and display the proper use of them.
- Identify various measuring instruments and display proper use of them.
- Explain basic 4-cycle engine operation.
- Disassemble, clean, identify and reassemble basic small engine components and describe their functions.
- Understand the various types of fuels used in small engines.
- Identify and describe basic principles and all components involved in small engine ignition systems. Identify and describe lubrication systems.
- Identify and describe basic principles and all components involved in small engine cooling systems.
- Describe basic principles of small engine carburetor.
- Describe and perform preventive maintenance.

6. Implications of the proposed change:

- a) What are the implications of this proposed change for staffing, facilities, and budget?

No anticipated changes in staffing or facilities as enrollment is anticipated to come from existing pool of students who would typically enroll in technology education courses, and may simply shift where sections are created.

Current facilities will be utilized and grant funds will be allocated for instructional materials as part of our annual process in identifying needs and opportunities in the department to support learning and maintain equipment.

- b) What are the implications of this proposed change for other courses in the department and for other departments in the school?

May shift enrollment from other sections in technology education content area but not anticipating a significant shift. Could potentially impact other semester elective course offerings initially in terms of when students choose to take Small Engines but anticipate this being minimal, and potentially only impacting grade level enrollment based on when students choose to take the course.

- c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?

A curriculum project will be proposed to create, plan and prepare to deliver the course, including time to examine and prepare materials and resources for student use.

7. Method of evaluating the success of the proposal after it is implemented:

- a) If the proposal is approved and implemented, how shall it be evaluated?

The ultimate measure of success for an elective course is in enrollment by students who are choosing to commit a section in their schedule. Our goal would be to reach two sections of Small Engines 161, one each semester.

In addition, we would evaluate by student feedback through surveys to determine how they value the course, confidence rating in skills, and would they recommend the course. Additionally we would use performance measures for growth in skill development.

- b) What specific outcomes shall indicate success of the implemented proposal?

Measurable growth in student skills and confidence as well as student feedback that they would recommend the course and find it valuable.

A sustained enrollment of students in one to two sections each year and increase in retention of automotive students in terms of number of courses taken.

APPLICATION FOR CURRICULAR CHANGE

School: Glenbrook South

Department: Mathematics

Date: 09/23/2019

Name of proposed curricular change: Advanced Data Structures and Algorithms

1. Brief description of the curricular change:

This new course is a continuation of the AP Computer Science A course. It will be an honors-level course. It will serve as a capstone for our Computer Science offerings and will meet a growing demand and need for program expansion.

2. Curriculum Planning Committee Membership

- a) List the members of the committee.

Phil Gartner, David Rogers, (GBN: Steve Goodman)

- b) Give the rationale for the membership of this committee.

David and Steve are the AP Computer Science A teachers. Phil is the Math IS and has worked with David to move forward with this proposal.

- c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.

3. Need for the curricular change:

- a) Present and analyze data on student learning that point to a need for change.

or

- b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

Many students are completing AP CS A during their sophomore or junior years (24 out of 51 at GBS this year, 19 out of 35 at GBS last year) and many are looking for more computer science coding courses.

Many surrounding districts offer more courses in Computer Science beyond AP CS Principles and AP CS A (Deerfield/Highland Park, Stevenson, 211, 214, Lake Forest, and more). We need to be able to offer our students similar opportunities for growth and enrichment.

or

- c) Summarize opinions of experts (researchers, higher educational professionals, business people, parents, community members) who speak to a need for change.

4. **Rationale for addressing the need through a curricular change:**

- a) State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.

Adding this course to our curriculum gives students more opportunities and choice for computer science education. Students will develop skills to become more creative and powerful programmers.

- b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.

Some students have been continuing their computer science education by requesting independent studies. It would be best for students to be able to work with classmates and have a dedicated teacher with a set curriculum.

- c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

Students who have taken AP Computer Science Principles and AP Computer Science A will find this a next logical step.

5. **Description of proposed change:**

- a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.

Students who have completed AP Computer Science A before their senior year. At GBS this would be an estimated 25-30 students annually who could qualify to take the course, but of those, we would anticipate 15-20 taking the course, due to scheduling issues, other interests, etc. GBN has 27 students in this course for 2019-20.

- b) Provide a tentative outline of the proposed course or program.

Potential course description linked in sheet, column "C".

6. **Implications of the proposed change:**

- a) What are the implications of this proposed change for staffing, facilities, and budget?
There would likely be one section at GBS needing to use the laptops in 194, 198, or 607. Or, if the appropriate equipment were mobile, it could be taught in any classroom. At this time, running the programs on a standard Chromebook is problematic.

- b) What are the implications of this proposed change for other courses in the department and for other departments in the school?

As a math elective, this course would potentially draw some students away from AP Statistics or Advanced Topics.

- c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?

The teacher would need some summer curriculum work, and some summer workshop training, if available.

7. Method of evaluating the success of the proposal after it is implemented:

- a) If the proposal is approved and implemented, how shall it be evaluated?

If the students sign up for the course and enrollment stays consistent year over year, we will know we have an interesting and successful course. We can also monitor college preparedness and the number of students pursuing pathways in CS at the collegiate level.

- b) What specific outcomes shall indicate success of the implemented proposal?

Same as 7(a)

Section A - Introduction

These procedures, outlined below, are intended to facilitate the systematic processing of curriculum development proposals for making modifications in the instructional program of District #225. The curriculum shall be defined to consist of all courses of study offered by the district.

Modifying the curriculum shall be defined as:

1. Adding or deleting a course, an entire sequence of courses, or a program.
2. Significantly changing the goals of an existing course or program.

Decisions concerning the administrative operation of the curriculum shall not be subject to the curriculum planning strategy. Decisions concerning such items as the following shall be made by the appropriate administrative staff:

- 1) assignment of the instructional staff,
- 2) development of the master class schedule,
- 3) assignment of students to classes,
- 4) recommendations concerning instructional materials, subject to the provisions of Policy 7180: Instructional Materials,
- 5) changes in course or program titles,
- 6) utilization of facilities,
- 7) classroom methodology or individual teaching strategies,
- 8) use of new instructional technologies.

Section B - Procedures

1. Each instructional supervisor, in conjunction with the associate principal for instruction and the department staff, shall conduct an annual evaluation of approximately twenty percent (20%) of the department's courses and programs. It is the expectation that all courses within a department will be reviewed at least once during the five-year cycle. The courses and programs to be reviewed will be determined through a collaborative process involving the associate principals for instruction and instructional supervisors at both schools. This review will be used as a base for the Instructional Supervisor Curriculum Report.
2. The impetus for curriculum change may be such factors as, but not limited to, the following: a demonstrated need for learning outcomes not met by current curriculum; data on student learning; demographic data on students; professional expert advice from educational consultants or representatives of higher education; the conclusions of educational research. Upon seeing a curricular need, staff members, students, parents, and members of the community may submit ideas for curriculum changes to the instructional supervisor of the appropriate department. Principals also shall inform parents and members of the community about curricular issues and shall invite representatives to join curriculum planning committees when appropriate. Experts and consultants may be engaged to provide input to the process when deemed appropriately by the respective principals.
3. Upon receiving a suggested change in curriculum, the instructional supervisor may convene an ad hoc departmental curriculum planning committee to address the need for the curricular change. This curriculum planning committee, after studying the perceived need, may write a curriculum proposal. If the proposed change affects more than one department, the principal may convene an ad hoc interdisciplinary committee to address the perceived need.
4. The proposal of the departmental committee must include the need, the rationale, a description, and the implications of the curricular change, as well as a method of evaluating the success of the implemented proposal (Appendix B).
5. All proposals recommended by the departmental or interdisciplinary committees shall be reviewed by the building's instructional supervisors and principal. Accepted proposals shall be acted on successively by the principal, superintendent, and the Board.

The decision or recommendation of each of the above-listed individuals or groups shall be communicated in writing to the committee submitting the proposal. A timeline for the strategy is contained in Appendix A of these Procedures.

6. No proposal shall be implemented unless approved by the principal, the superintendent, and the Board. The instructional supervisors shall serve in an advisory function.
7. Each year proposals shall be submitted to the Board for approval as indicated in the timeline in Appendix A of these Procedures. Under extraordinary circumstances, the superintendent may authorize the submission of a proposal to the curriculum planning process or to the Board at any time during the year.
8. One year after the implementation of a curriculum change, the instructional supervisor and the designated administrator shall evaluate each proposal approved by the Board in order to determine whether the proposal was successful in meeting its goals and fulfilling the educational needs. A report of this evaluation, together with a recommendation as to the continuance or modification of the implemented change, shall be shared with the appropriate committee that had proposed the curriculum change and shall be submitted to the superintendent and the Board no later than the end of the third semester that the course is offered.

APPENDIX A

CURRICULUM PLANNING STRATEGY
ANNUAL TIMELINE *

<u>Deadline</u>	<u>Activity</u>
March 15 to August	Collaboration between instructional supervisors and principal or associate principal for instruction at both schools to review department curriculum in light of data on student learning and to consider curricular changes.
August to October	Instructional supervisors set up committees for suggested curricular changes. Committees meet, plan, elicit input from various constituencies, and write proposal applications.
By November 1	Curriculum planning committees submit applications for curriculum changes to the instructional supervisors.
By November 15	Instructional supervisors review proposals and submit recommendations to the principals.
By December 1	Principals accept or reject proposals and, if accepted, send them to the superintendent including any resource implications.
Prior to Winter Break	Superintendent accepts or rejects proposals and gives rationale for actions.
By February 1	Superintendent informs the Board of Education and submits accepted proposals for Board action.
By March 1	Instructional supervisors submit proposals for summer curriculum work to develop course outlines and instructional resources.

By March 15

Superintendent either approves the proposal for summer project and designates funding for summer curriculum project or rejects the proposal. Instructional Supervisor Curriculum Reports are due to the superintendent. These reports are based on curriculum review conducted or modifications made during the past year and identified curriculum directions for the ensuing year(s). The reports should also include an evaluation and recommendation for any course that has completed the third semester of implementation.

Note: Under extraordinary circumstances, the superintendent may authorize the submission of a proposal to the Board at any time during the year.

*** This timeline will be coordinated with but not limited by the district budget timeline process.**

APPENDIX B

APPLICATION FOR CURRICULAR CHANGE

School:

Department:

Date:

Name of proposed curricular change:

1. **Brief description** of the curricular change

2. **Curriculum Planning Committee Membership**
 - a) List the members of the committee.
 - b) Give the rationale for the membership of this committee.
 - c) If outside experts or consultants are requested, give rationale for their inclusion, proposed revisions, and the curriculum vitae and fees.

3. **Need** for the curricular change:
 - a) Present and analyze data on student learning that point to a need for change.

or
 - b) Present other data (demographic, anecdotal, research, and others) that point to a need for change.

or
 - c) Summarize opinions of experts (researchers, higher educational professionals, business people, parents, community members) who speak to a need for change.

4. **Rationale** for addressing the need through a curricular change:
 - a) State the purpose of the change, indicating specifically how this curriculum change shall improve student learning by meeting the needs described in #3 above.
 - b) If the committee considered other approaches to meeting the needs described above, describe those alternatives and indicate why each alternative was rejected.
 - c) Delineate the ways in which this curriculum proposal, if implemented, shall complement other courses in the department and the school.

APPENDIX B (Continued)

APPLICATION FOR CURRICULAR CHANGE

5. **Description** of proposed change:
 - a) Describe the students for which this curriculum change has been designed and the approximate size of the target group.
 - b) Provide a tentative outline of the proposed course or program.
6. **Implications** of the proposed change:
 - a) What are the implications of this proposed change for staffing, facilities, and budget?
 - b) What are the implications of this proposed change for other courses in the department and for other departments in the school?
 - c) What additional resources in personnel and money shall be required before this change is implemented? Shall summer curriculum work be required?
7. **Method of evaluating** the success of the proposal after it is implemented:
 - a) If the proposal is approved and implemented, how shall it be evaluated?
 - b) What specific outcomes shall indicate success of the implemented proposal?

Adopted: November 21, 1977
Revised: October 9, 1995
Revised: November 27, 2000
Revised: August 11, 2003