MOU Appendix A: BYLAWS
Texas Physics Consortium

Article I
Purpose, Nature, and Scope of the Consortium

Section 1: The Texas Physics Consortium, hereinafter called the TPC, was initiated by the chairs of the Physics departments at Midwestern State University, Prairie View A&M University, Tarleton State University, Texas A&M University-Commerce, Texas A&M University-Corpus Christi, Texas A&M University-Kingsville, Texas Southern University, and West Texas A&M University in 2011. The goals of the TPC are to (1) provide a Joint B.S. Physics degree at a minimal cost to the State of Texas using distributed resources, (2) increase the number of B.S. Physics graduates in Texas from underrepresented groups, (3) supply high quality upper-division courses in physics and closely related disciplines such as astronomy and engineering physics to students, (4) provide research opportunities for undergraduate majors and minors in physics and closely related disciplines, (5) create the administrative infrastructure necessary to enable the TPC to function as a "distributed academic program," and (6) provide a functioning model of a distributed academic program for adoption elsewhere. The initial Full Member institutions received degree granting authority from their respective Boards of Regents and the Texas Higher Education Coordinating Board in 2013.

The initial Full Members of the TPC are Midwestern State University, Prairie View A&M University, Tarleton State University, Texas A&M University-Corpus Christi, Texas A&M University-Kingsville, Texas Southern University, and West Texas A&M University. The initial Affiliate Member of the TPC is Texas A&M University-Commerce.

Section 2: Academic and fiscal oversight of the TPC will be performed by an Administrative Board. Deans from the Full Member institutions will be voting members, while Deans from the Affiliate Member Institutions will be non-voting members. The Administrative Board is charged with the responsibility of ensuring compliance with all policies of the TPC and the Texas Higher Education Coordinating Board and resolving disputes within the TPC between the various institutions.

Section 3: The Texas Physics Consortium Council, hereafter called the Council, will consist of one faculty representative from each member institution; those of Full Members shall be voting members, those of Affiliate Members shall be non-voting members. The Council will collectively make curriculum recommendations including student learning outcomes for each course and program assessment procedures for the Joint BS Physics degree.

Section 4: The Council will be led by a TPC Chair, hereafter called the Chair, who will serve as the spokesperson for the TPC. The Chair will be charged with coordinating with

administration of the member universities. All curriculum recommendations will be submitted by the Council through the Chair for approval by the Administrative Board.

Section 5: The presiding officer at meetings of the Council will be the Chair. The Chair shall be a voting member of the Council chosen by the Council members for a three-year term. Each Chair selected shall serve until a successor is approved at the last meeting of the Council during the third academic year of the Chair's term. The Council may provide for an extended selection process, and for succession if a Chair is unable to serve.

Section 6: The presiding officer at meetings of the Administrative Board will be the Chair, who will be a non-voting member of the Board.

Article II
Membership

Section 1: There shall be two classes of institutional membership: Full and Affiliate.

Section 2: Full Members of the TPC will be institutions that have authority from the Texas Higher Education Coordinating Board to award the Joint BS Physics Degree. Full member institutions may receive or originate TPC courses. A Local TPC Coordinator will be designated by the Full member institution to serve as its voting member of the Texas Physics Consortium Council.

Section 3: Affiliate Members of the TPC are members who do not have authority from the Texas Higher Education Coordinating Board to award the Joint BS Physics Degree. Affiliate members will be able to receive TPC courses, and may originate courses upon receiving prior approval via a majority vote of the Council. Each Affiliate Member of the TPC will appoint one faculty member from its Physics program to serve as the TPC Liaison for its institution. The institutions having Affiliate Membership may be represented at all TPC Council meetings but shall not have voting rights.

Section 4: Regionally accredited colleges and universities within Texas that have access to a videoconference network accessible to current institutional members may be considered for Full or Affiliate Membership in the TPC.

Section 5: Eligible institutions desiring to participate in the work of the TPC as members shall apply for the appropriate category of membership to the Council through the Chair. The recommendation of the Council will be forwarded by the Chair to the Administrative Board for final approval.

Section 6: Applications for membership in the TPC shall be considered by the Council twice per year. Approval by a majority of voting members is required for recommendation to the Administrative Board. Approval by a majority of voting members of the Administrative Board is required for final approval of membership. The Chair will notify the applying institution of the results within thirty (30) days of the final decision.

Section 7: Any institution wishing to withdraw from the TPC must submit its intention in writing to the Administrative Board at least one academic year prior to the withdrawal date.

Article III
Meetings and Committees

Section 1: The Council shall have at least one meeting each academic year. Full members shall be officially represented at such meetings by their voting representatives on the Council. Affiliate Members shall be officially represented by their Liaison.

Section 2: Operating procedures of the Council will be developed by the Council and may be amended by it. Such procedures and amendments will be forwarded to the Administrative Board for approval.

Section 3: When necessary, Council members may be represented at meetings by a proxy, as forwarded to the Chair.

Section 3: The Council shall from time to time establish such ad hoc committees, study groups, and consultancies as may be needed.

Section 4: All reports of committees, study groups, and consultants shall be presented in written form to the Council for appropriate action.

Article IV
Course Offering

Section 1: The Council, as facilitated by the Chair, will designate which institution will offer each course and determine the semester of each course's offering.

Section 2: The Chair will be charged with assuring that information regarding each semester's offering is distributed to each institution for inclusion in the schedule of courses, that technology needs are met, and that textbook information is conveyed.

Section 3: The TPC initially intends to offer Advanced Physics courses based upon the following rotation frequency:

- Each course classified under "Upper Level Physics Core" on an annual basis.
- Each course classified under "Advanced Physics Elective" on a two year rotation.

Section 4: The Council may make recommendations to the Administrative Board for alterations in the frequency of course offerings as enrollments warrant.

Section 5: Disputes on assignment of courses to institutions will be brought to the Council for action by the Council or the Chair.

- Should the dispute not be resolved to the satisfaction of all partners, the petitioner may appeal to the Administrative Board for resolution.
- A decision by the Administrative Board is final.

Section 6: Full Member institutions are prohibited from:

- offering any course to their students outside of the TPC that is listed in the TPC as part of the Upper Level Physics Core;
- substituting comparable courses from other disciplines (e.g., engineering) for TPC Upper Level Physics Core classes;
- substituting other physics courses including Independent Study courses for TPC Upper Level Physics Core classes.

Members are strongly encouraged to provide any other upper level physics course that can be taught by distance education methods to all TPC institutions.

Exceptions may be made in exceptional cases provided approval is granted by the home institution's dean/provost (as dictated by the student's home institution practice) followed by final approval of the Administrative Board.

Section 7: A TPC course will begin on the first class day of the last-starting TPC member and conclude on the last class day of the earliest-ending TPC member with students.

Section 8: Meeting times of all TPC classes may be adjusted to assure compliance with regulatory expectations on class length, adjusted as needed due to length of semester.

Section 9: Final exams for all TPC courses will occur within 7 days of the above designated last class day. TPC course instructors will be required to adjust final examination times to facilitate the uncoordinated schedules and calendars of the diverse students enrolled.

Section 10: Grades will be due for all TPC courses no later than 10 days after the final class day as designated above. The 10 day window may be adjusted as needed to accommodate grade deadlines for the diverse students enrolled, particularly for those students who may be seniors from institutions with early grade deadlines for graduating seniors.

Section 11: The student's home institution will determine all dates for registration, add/drop, bill payment, etc. The student's home institution is responsible for communicating to the course's originating institution any changes in enrollment status of a student.

Article V
Faculty & Student Policies

Section 1: Enrollment in TPC courses:

- Students desiring to enroll in TPC courses will apply at the university from which they plan to graduate with the Joint BS Physics Degree. This university will be known as the Home Institution. Undergraduate applicants will apply to the Home Institution through the usual undergraduate admissions procedures.
- Students accepted into a TPC course will abide by the university rules and undergraduate or graduate school policies at the Home Institution.

Section 2: Student evaluation of instruction in each TPC course will use the means by which faculty are evaluated at the instructor's Home Institution.

Section 3: All students in the course regardless of the student's Home Institution will be encouraged and expected to complete the student evaluation of instruction.

Section 4: The Chair will be charged with facilitating all students' opportunity to participate in the student evaluation of instruction.

Section 5: TPC member institutions will cooperate with technology challenges to facilitate guest students evaluating instructors.

Section 6: Student evaluation of instruction will be considered in the Home Institution's evaluation of faculty performance no differently than it is considered for courses instructed that are not part of the TPC.

Section 7: Student evaluation of instruction among other faculty evaluation measures will be considered by the Council in the determination of faculty assigned to teach TPC courses. Courses may be reassigned in the event of inadequate instructional performance.

Section 8: Disputes regarding grades and scholastic dishonesty for TPC courses will initially be handled by the course instructor. In the case where the student wishes to appeal the instructor's decision, the Chair will be notified by the Instructor and the appeal process will follow the process of the student's Home Institution. Once the appeal process has been completed, the Chair will be notified by the student's Home Institution of the final resolution.

Article VI
Administrative Procedures

Section 1: The Chair shall be charged with assuring that appropriate data management practices are followed.

- All students in the consortium shall be tracked in a common database managed by the Chair or the Chair's designee.
- Tracking will include progression of students and projection of courses needed in upcoming semesters. Such information will influence the rotation of courses and the assignment of said courses.

- The Council shall annually report to the Administrative Board the progression of students (e.g., retention rates, 4, 5, and 6 year graduation rates), course enrollments for the previous academic year, graduates per institution, student learning outcomes, and recommendations/decisions for improvement of the effectiveness of the consortium.

Section 2: Amendments to the Bylaws of the TPC may be approved for recommendation to the Administrative Board by vote of at least a two-thirds majority of the Council and approved by a vote of at least a two-thirds majority of the Administrative Board; provided, however, that no amendment may be adopted unless it has been submitted in writing to all Council and Administrative Board members at least thirty days in advance of consideration by the Council and Administrative Board.

Section 3: Adequate records of all financial transactions of the TPC shall be kept and shall be subject to annual audit.

Section 4: Neither the TPC nor any members thereof shall in the name of the TPC support or oppose any political cause. Further, no such member may in the name of the TPC act as proponent or opponent of proposals for basic changes in existing laws, whether local, state, or federal.

Section 5: The TPC as a whole or any combination of member institutions may make joint efforts to seek grants or other funding to support the objectives of the TPC.

Section 6: Cooperation in undergraduate and graduate programs not directly related to TPC course offerings shall be encouraged.

Section 7: The members of the TPC will work cooperatively within the framework of individual university rules and the rules of their Governing Boards to develop proposals for new degrees offered by partner institutions. The same process will be followed to make modifications in academic programs or to alter an institution's participation in a particular degree program.

Section 8: The Council shall be charged with developing procedures for monitoring and reporting of student outcomes, both for TPC courses and for program assessment. An annual report of the program assessment results will be provided to the Administrative Board by the Chair.

Section 9: The Bylaws of the TPC will be reviewed annually and updated as necessary. Changes will require a two-thirds vote of the Administrative Board.

MOU Appendix B
Agreement on Teaching Workload Credit and Receipt of Generated Tuition and Fees for Joint Courses Taught by the Partner Institutions of the Texas Physics Consortium

WHEREAS:
Midwestern State University, Prairie View A&M University, Tarleton State University, Texas A&M University-Corpus Christi, Texas A&M University-Kingsville, Texas Southern University, and West Texas A&M University as full member institutions, and Texas A&M University-Commerce as an affiliate member institution have agreed to form the Texas Physics Consortium (TPC) in order to provide a Joint B.S. Physics Degree to students at full member institutions at a minimal cost to the State of Texas,

THEREFORE:
Midwestern State University, represented by Dr. Jesse W. Rogers, President,
Prairie View A&M University, represented by Dr. George C. Wright, President
Tarleton State University, represented by Dr. F. Dominic Dottavio, President,
Texas A&M University-Commerce, represented by Dr. Dan R. Jones, President,
Texas A&M University-Corpus Christi, represented by Dr. Flavius C. Killebrew, President,
Texas A&M University-Kingsville, represented by Dr. Steven H. Tallant, President,
Texas Southern University, represented by Dr. John M. Rudley, President, and
West Texas A&M University, represented by Dr. J. Patrick O'Brien, President,

AGREE to the following additional terms of the Memorandum of Understanding:

Each TPC partner will offer a TPC course originating at any of the partner institutions if at least one of its students is enrolled in that course.

If an institution's students are enrolled in a course taught by a TPC faculty member at another partner institution then the former institution will be referred to as "course receiving institution" and the latter institution as "course originating institution".

At the beginning of a term, while deciding to offer or cancel a course by the course originating institution, the total number of students enrolled for the course at both the originating and receiving institutions will be added together to determine whether the course meets the minimum enrollment of ten students in order to be offered. If there are less than a total of ten students enrolled at all of the TPC institutions combined, the course will not be offered.

A faculty member at a TPC partner institution assigned to teach a TPC course for broadcast for the forthcoming semester in the published course schedule will teach the course even if no student is enrolled for that course at her/his institution provided the course meets the minimum combined enrollment across all of the TPC institutions of ten students.

The instructor of record at the course originating institution will be given the appropriate teaching credit based on the combined course enrollment at all participating TPC institutions.

Tuition and Fees generated for all students shall remain at the student's home institution, except that they shall fund the fees hereinafter provided.

An administration fee of $10.00 per TPC SCH per student enrolled in a TPC course at a member institution will be assessed to that member institution to be transferred to the TPC Chair's institution for purposes of funding administrative costs. The Chair shall use these funds to employ an administrative assistant(s) to track students, to create reports, and to coordinate communication between and among the institutions' registrars, distance learning directors, and other entities as needed. These funds may also aid in marketing efforts of the TPC. The administrative fee will be transferred by each institution after the census date.

An instructional fee of $50.00 per TPC SCH per student enrolled in a TPC course at a receiving member institution will be assessed to the receiving member institution and transferred to the originating institution.

In order to assist with the growth of majors in TPC, both this instructional fee and the administrative fee should not be part of a differential tuition or fee cost that TPC students are required to pay.

Each TPC partner institution will report annually to the Texas Higher Education Coordinating Board those students who complete the Joint B.S. Degree in Physics at their institution.

To meet the Texas Higher Education Coordinating Board minimal requirement for program graduates, the combined number of students awarded the Joint B.S. Degree in Physics from all TPC partner institutions will be used.

This agreement shall become effective upon the approval and execution by the Presidents of TPC partner institutions, and will be renewable every five years upon consent of all partner institutions. This agreement may be amended by means of common written consent on the part of the signatories or their designated representatives.

IN AFFIRMATION:

Dr. Jesse W. Rogers, Midwestern State University, President	11/12/13 **Date**
Dr. George C. Wright, Prairie View A&M University, President	2-19-14 **Date**
Dr. F. Dominic Dottavio, Tarleton State University, President	9.12.13 **Date**
Dr. Dan R. Jones, Texas A&M University-Commerce, President	10-8-13 **Date**
Dr. Flavius C. Killebrew, Texas A&M University-Corpus Christi, President	1-3-14 **Date**
Dr. Steven H. Tallant, Texas A&M University-Kingsville, President	12-9-13 **Date**
Dr. John M. Rudley, Texas Southern University, President	10-16-13 **Date**
Dr. J. Patrick O'Brien, President, West Texas A&M University	11.25.13 **Date**

MOU Appendix C
Description of course equivalencies between the present institutional members of the Texas Physics Consortium

PHYS 2425 – University Physics I

Description: An introduction to mechanics, heat, and wave motion. This is a calculus-based course for Scientists and Engineers.
Hours: 4 hours (3 lecture/3 lab)
Prerequisites: Credit for MATH 2413 (Calculus I) or concurrent registration

Midwestern State University	PHYS 1624	Texas A&M University-Corpus Christi	PHYS 2425
Prairie View A&M University	PHYS 2513/2511	Texas A&M University-Kingsville	PHYS 2325/2125
Tarleton State University	PHYS 122	Texas Southern University	PHYS 245/215
Texas A&M University-Commerce	PHYS 2425	West Texas A&M University	PHYS 2425

PHYS 2426 – University Physics II

Description: An introduction to electricity, magnetism, and optics. This is a calculus-based course for Scientists and Engineers.
Hours: 4 hours (3 lecture/3 lab)
Prerequisites: Credit for PHYS 2425 (University Physics I) and credit or concurrent registration in MATH 2414 (Calculus II).

Midwestern State University	PHYS 2644	Texas A&M University-Corpus Christi	PHYS 2426
Prairie View A&M University	PHYS 2523/2521	Texas A&M University-Kingsville	PHYS 2326/2126
Tarleton State University	PHYS 242	Texas Southern University	PHYS 246/216
Texas A&M University-Commerce	PHYS 2426	West Texas A&M University	PHYS 2426

PHYS 331 - Mechanics I

Description: A mathematical treatment of the fundamentals of classical mechanics. Topics include particle dynamics in one, two and three dimensions; conservation laws; dynamics of a system of particles; motion of rigid bodies; central force problems; central force problems; accelerating coordinate systems; gravitation; Lagrange's equations and Hamilton's equations.
Hours: 3 hours (3 lecture/0 lab)
Prerequisites: PHYS 2425 (University Physics I); Credit or concurrent registration in MATH 2415 (Calculus III) or MATH 2320 (Differential Equations).

Midwestern State University	PHYS 3313	Texas A&M University-Corpus Christi	PHYS 3311
Prairie View A&M University	PHYS 3103	Texas A&M University-Kingsville	PHYS 3313
Tarleton State University	PHYS 331	Texas Southern University	PHYS 272
Texas A&M University-Commerce	PHYS 411	West Texas A&M University	PHYS 3330

PHYS 332 – Electromagnetic Field Theory

Description: Electrostatics; Laplace's equation; the theory of dielectrics; magnetostatic fields; electromagnetic induction; magnetic fields of currents; Maxwell's equations.
Hours: 3 hours (3 lecture/0 lab)
Prerequisites: PHYS 2426 (University Physics II); Credit or concurrent registration in MATH 2415 (Calculus III) or MATH 2320 (Differential Equations).

Midwestern State University	PHYS 3323	Texas A&M University-Corpus Christi	PHYS 3490
Prairie View A&M University	PHYS 3123	Texas A&M University-Kingsville	PHYS 3323
Tarleton State University	PHYS 332	Texas Southern University	PHYS 333
Texas A&M University-Commerce	PHYS 412	West Texas A&M University	PHYS 3340

PHYS 333 - Thermodynamics

Description: Concept of temperature, equations of state; the first and the second law of thermodynamics; entropy; change of phase; the thermodynamics functions.
Hours: 3 hours (3 lecture/0 lab)
Prerequisites: PHYS 2425 (University Physics I); Credit or concurrent registration in MATH 2415 (Calculus III).

Midwestern State University	PHYS 3333	Texas A&M University-Corpus Christi	PHYS 3490
Prairie View A&M University	PHYS 4063	Texas A&M University-Kingsville	PHYS 3333
Tarleton State University	PHYS 333	Texas Southern University	PHYS 336
Texas A&M University-Commerce	PHYS 414	West Texas A&M University	PHYS 3320

PHYS 334 – Modern Physics I

Description: Foundations of the atomic theory of matter; kinetic theory; elementary particles; radiations; atomic model; atomic structure; atomic spectra and energy levels; quantum theory of radiation; x-rays; special theory of relativity.
Hours: 3 hours (3 lecture/0 lab)
Prerequisites: PHYS 2426 (University Physics II); Credit or concurrent registration in MATH 2415 (Calculus III) or MATH 2320 (Differential Equations).

Midwestern State University	PHYS 3343	Texas A&M University-Corpus Christi	PHYS 3312
Prairie View A&M University	PHYS 3183	Texas A&M University-Kingsville	PHYS 3343
Tarleton State University	PHYS 334	Texas Southern University	PHYS 332
Texas A&M University-Commerce	PHYS 321	West Texas A&M University	PHYS 3310

PHYS 430 – Mathematical Methods for Physicists and Engineers

Description: Mathematical techniques from the following areas: infinite series; integral transforming; applications of complex variables; vectors, matrices, and tensors; special functions; partial differential equations; Green's functions; perturbation theory; integral equations; calculus of variations; and groups and group representatives.
Hours: 3 hours (3 lecture/0 lab)
Prerequisites: MATH 2415 (Calculus III) and MATH 2320 (Differential Equations).

Midwestern State University	PHYS 4301	Texas A&M University-Corpus Christi	PHYS 3490
Prairie View A&M University	PHYS 3163	Texas A&M University-Kingsville	PHYS 4303
Tarleton State University	PHYS 430	Texas Southern University	PHYS 247
Texas A&M University-Commerce	PHYS 317	West Texas A&M University	PHYS 4340

PHYS 435 – Quantum Physics

Description: The Schroedinger equation; one dimensional systems; the Heisenberg uncertainty principle; magnetic moments and angular momentum; two and three dimensional systems; approximation methods; spin.
Hours: 3 hours (3 lecture/0 lab)
Prerequisites: PHYS 334 (Modern Physics I), MATH 2415 (Calculus III), and MATH 2320 (Differential Equations).

Midwestern State University	PHYS 4353	Texas A&M University-Corpus Christi	PHYS 3490
Prairie View A&M University	PHYS 4023	Texas A&M University-Kingsville	PHYS 4353
Tarleton State University	PHYS 435	Texas Southern University	PHYS 353
Texas A&M University-Commerce	PHYS 420	West Texas A&M University	PHYS 4320

PHYS 437 – Nuclear Physics

Description: The study of nuclear phenomena and properties including mass, stability, magnetic moment, radioactive decay processes and angular momentum. The use of nuclear techniques as applied to other scientific fields including electronics and medicine.
Hours: 3 hours (3 lecture/0 lab)
Prerequisites: PHYS 334 (Modern Physics I).

Midwestern State University	PHYS 4373	Texas A&M University-Corpus Christi	PHYS 3490
Prairie View A&M University	PHYS 3243	Texas A&M University-Kingsville	PHYS 4360
Tarleton State University	PHYS 437	Texas Southern University	PHYS 366
Texas A&M University-Commerce	PHYS 437	West Texas A&M University	PHYS 4360

PHYS 440 – Physics Advanced Lab

Description: A laboratory course focusing on experimental design, advanced data analysis and reduction, and experimental laboratory techniques and instrumentation. Experiments will be drawn from a variety of physics areas.
Hours: 3 hours (2 lecture/3 lab)
Prerequisites: PHYS 334 (Modern Physics I) or concurrent registration.

Midwestern State University	PHYS 4403	Texas A&M University-Corpus Christi	PHYS 3490
Prairie View A&M University	PHYS 4103	Texas A&M University-Kingsville	PHYS 3310
Tarleton State University	PHYS 440	Texas Southern University	PHYS 360
Texas A&M University-Commerce	PHYS 441	West Texas A&M University	PHYS 3450

PHYS 461 – Physics Research Project

Description: The first half of a two semester sequence. The student will work with a faculty member to develop and conduct a senior research project including a search of the relevant literature and presentation of the proposed research idea.
Hours: 1 hour (1 lecture/2 lab)
Prerequisites: PHYS 334 (Modern Physics I).

Midwestern State University	PHYS 4611	Texas A&M University-Corpus Christi	PHYS 3490
Prairie View A&M University	PHYS 4991	Texas A&M University-Kingsville	PHYS 4391
Tarleton State University	PHYS 461	Texas Southern University	PHYS 415
Texas A&M University-Commerce	PHYS 418	West Texas A&M University	MPS 4097

PHYS 462 – Physics Research Seminar

Description: The second half of a two semester sequence. The student will work with a faculty member to conduct a senior research project including giving an oral presentation of the final results and writing up the results in a form suitable for publication.
Hours: 1 hour (1 lecture/0 lab)
Prerequisites: PHYS 461 (Physics Research Project).

Midwestern State University	PHYS 4621	Texas A&M University-Corpus Christi	PHYS 3490
Prairie View A&M University	PHYS 4992	Texas A&M University-Kingsville	PHYS 4392
Tarleton State University	PHYS 462	Texas Southern University	PHYS 416
Texas A&M University-Commerce	PHYS 419	West Texas A&M University	PHYS4103