Affordable Materials Grants, Round 20:

Continuous Improvement Grants

(Fall 2021-Fall 2022)

Proposal Form and Narrative

# Notes

* The proposal form and narrative .docx file is for offline drafting and for our review processes. Submitters must use the online Google Form for proposal submission, including uploading this document.
* The only way to submit the official proposal is through the Google Form. The link to the online application is on the [Round 20 RFP Page](https://www.affordablelearninggeorgia.org/about/rfp_r20).
* The italic text provided below is meant for clarifications and can be deleted.

The Round 20 Kickoff will include an asynchronous training module, required for all team members to complete, followed by the synchronous Kickoff Meeting on December 10, 2021 from 1pm-4pm. At least two team members from each awarded team (unless the award is for one individual) are required to attend the synchronous Kickoff Meeting.

# Applicant and Team Information

*The* ***applicant*** *is the proposed Project Lead for the grant project. The* ***submitter*** *is the person submitting the application (which may be a Grants Officer or Administrator). The submitter will often be the applicant—if so, just leave the submitter blank.*

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| Requested information | Answer |
| Institution | Valdosta State University |
| Applicant name | Shantanu Chakraborty |
| Applicant email | shchakraborty@valdosta.edu |
| Applicant position/title | Assistant Professor |
| Submitter name |  |
| Submitter email |  |
| Submitter position/title |  |

Please provide the first/last names and email addresses of all team members within the proposed project. Include the applicant (Project Lead) in this list. Do not include prefixes or suffixes such as Ms., Dr., Ph.D., etc.

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| Team member | Name | Email address |
| Team member 1 | Shantanu Chakraborty | shchakraborty@valdosta.edu |
| Team member 2 |  |  |
| Team member 3 |  |  |
| Team member 4 |  |  |
| Team member 5 |  |  |

If you have any more team members to add, please enter their names and email addresses in the text box below.

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# Project Information

| Requested information | Answer |
| --- | --- |
| Type of Project | * *Revision of open educational resources (OER) used in existing courses* * *Creation of ancillaries for existing OER courses* |
| Requested Amount of Funding  *$10,000 maximum total award per grant* |  |
| Course Titles and Course Numbers | PHYS 2211K: Principles of Physics I |
| Final Semester of Project | * Summer 2022 |
| Currently Existing Resource(s) to be Revised/Ancillaries Created  *Please provide a title and web address (URL) to each of the currently existing resources that you are revising, creating new ancillary materials for, or replacing. If replacing, please include a title and web address (URL) to the new OER as well.* | PHYS 2211K - Affordable Learning Georgia Materials https://vtext.valdosta.edu/xmlui/handle/10428/2897 |

# Project Goals

The goals for this are to enhance the learning experience, to improve student success rate and to minimize the scope of academic dishonesty. In order to facilitate that I will develop video lectures and slides available to students and other instructors of PHYS 2211K: Principles of Physics I. Due to the global pandemic situation there has been growing emphasis on remote learning and an increased demand for alternatives to in-person lectures. When a large group students attend classes in large classrooms or auditoriums, technology constraints like the poor resolution of the recording camera or lack of movement of the recording camera can make live lecture streaming and viewing almost impractical and in-effective. Therefore, one of the goals of this project is to provide an accessible option through a complete set of pre-recorded PowerPoint lecture slides that will cover course material for the entire course. I also plan to upload video lectures which will supplement these PowerPoint slides.

These Powerpoint slides will be organized by topic or chapter of the OpenStax University Physics textbook. Each slide will occupy about one week’s worth of lecture time. These slides will also serve as independent, self-contained resources and will include references to the textbook. Moreover, the slides will have animations, relevant diagrams, conceptual problem and worked-out problems to facilitate the learning experience of the students.

Students can enjoy this interactive learning experience from their personal devices such laptops, tablets, smartphones etc. and use it as a supplementary educational material. All the developed materials will be also stored in a master course-shell in Blazeview (Brightspace by D2L) so in future all the faculty members teaching PHYS 2211 at VSU will also have access to the teaching materials. This will ensure sustainability and availability of streamlined teaching materials institution-wide. Finally, the course materials will be published in open-access platforms to be shared with all the institutions throughout Georgia.

Textbook transformation grant for this course was done in Fall 2016. Over the years most of the homework and recitation problem sets and their solutions became available in various online platforms. Online platforms like chegg, numerade, slader, Bartleby etc. provides the solutions to these problems for a subscription fee. While use of the solutions from these resources violates the principles of academic honesty, it also creates a bias among the students from different economic background. In addition to that, our study guides previously contained several items which were originally located on journal articles, GALILEO, HyperPhysics, MERLOT and other open sources. Over the past few years some of these items has been relocated or expired. Therefore, most of our study guides, homework problem sets and recitation sets are in a dire need of revision to make it fair for all of our students.

# Action Plan

Dr. Chakraborty has been the instructor of the PHYS 2211K course for past three years and has been continuously updating and enhancing the PowerPoint slides for content and presentation. In the initial phase of the project, Dr. Chakraborty will incorporate audio narrations and associated captioning to his existing PowerPoint slides.

These slides will also include animations and other interactive curricular materials to facilitate the flow of information beneficial for student learning. Each slide will also contain several conceptual and example problems worked out step-by-step to facilitate the student’s understanding of key concepts. Once finalized, these slides will be converted into lecture videos and hosted in a Youtube channel. Automatic conversion of audio to closed captioning text standards used by Youtube complies with the current ALG accessibility standards. The lecture slides along with their corresponding lecture video links will be hosted in Vtext Institutional Repository, LibGuides and in the master courseshell of PHYS 2211 created for Blazeview (D2L).

YouTube allows automatic conversion of audio to closed captioning text that comply with ALG accessibility standards. Dr. Chakraborty will inspect the auto-generated text and edit as required to correct errors and conform to the materials presented. Once finalized, the lecture slides and the links to the lecture videos will be uploaded to Vtext Institutional Repository and LibGuides to provide open access to students and instructors.

Currently, Dr. Chakraborty has been revising homework and recitation problems sets to remove the problems whose solutions are readily available in different online homework platforms. In addition to that, Dr. Chakraborty will develop new sets of in-class practice problem sets (DIY problems) to ensure that the students are not using the help of online platforms. This is an important step to ensure that the students have a good grasp of the key concepts of each chapter. It will also help them to prepare well before attempting the homework problem sets, which will also minimize the use of the online homework platforms and eliminate the major source of academic dishonesty in PHYS 2211k. All these newly developed problems sets and study guides will be available in vtext, libguides and in the current learning management system, Blazeview (D2L). Blazeview (D2L) is well equipped to host and conduct online homework and quizzes which will help the instructors to keep track of the student learning and to eliminate the chances of academic dishonesty by the modifying the problems. It will also ensure the sustainability of this development by sharing the master courseshell with the other physics and astronomy faculty members at VSU.

Dr. Chakraborty will be responsible to complete the entire project. It will be Dr. Chakraborty’s role to develop the slides, video lectures, problem sets and study guides required for the successful completion of this project. Slide editing and video rendering will require minimal amount of time commitment from Dr. Chakraborty, owing to the existing materials developed by him. However, developing the revised study guides, homework and recitation problem sets will require a considerable amount of time commitment from him.

# Timeline

*Provide a project timeline aligned with the action plan above. Include major milestones and deadlines, keeping in mind your selected Final Semester.***Spring 2022:** Overload for Dr. Chakraborty, if proposal is funded. Update the lecture slides, complete the video-rendering and upload the video lectures in Youtube and Vtext.

**Summer 2022:** Overload for Dr. Chakraborty, if proposal is funded. Revise and update the existing study guides, homework and recitation problem sets. Finally upload the revised materials Vtext and libguides.

# Budget

*Please enter your project’s budget below. Include personnel and projected expenses, keeping in mind that this grant funds the estimated time in your Action Plan. The maximum amounts for the award are as follows:*

* Dr. Chakraborty - $2000 for overload in Spring and Summer 2022.
* *A Windows-based tablet or PC for the illustrations and diagrams of the lecture slides and problems sets - $1000.*

# Creative Commons Terms

*I understand that any new materials or revisions created with Affordable Learning Georgia funding will, by default, be made available to the public under a Creative Commons Attribution License (CC-BY), with exceptions for modifications of pre-existing resources with a more restrictive license.*

# Accessibility Terms

*I understand that any new materials or revisions created with Affordable Learning Georgia funding must be developed in compliance with the specific accessibility standards defined in the Request for Proposals.*

# Letter of Support

*The Department Chair from the corresponding project, or the Department Chair’s direct report such as the Dean or Provost, must provide a signed Letter of Support for the project. This letter should acknowledge the following:*

* *The department will provide support for fund disbursement in correspondence with the Grants/Business Office.*
* *The department approves of the work on the proposal by the applicant(s).*
* *The department acknowledges the sustainability of these affordable resources after the grant work is complete.*

*In the case of multi-institutional affiliations, all participants’ institutions must provide a letter of support.*

*Please provide the name and title of the department chair (or other administrator) who provided you with the Letter of Support.*

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| **DR. PAUL VINCENT**, INTERIM DEPARTMENT HEAD, DEPARTMENT OF PHYSICS, ASTRONOMY, GEOSCIENCES AND ENGINEERING TECHNOLOGY, VALDOSTA STATE UNIVERSITY |

# Grants or Business Office Acknowledgment Form

*Institutional Grants/Business Offices will be responsible for fund disbursement, often in correspondence with the Department Chair, including expense and travel reimbursement. All applicants will need to provide a signed Acknowledgement Form, the template for which is linked on the RFP page, stating that the Grants/Business Office knows about the applicant’s intent to apply for an Affordable Materials Grant. Either the Department Chair or the Project Lead can work with the Grants/Business Office to get this signed form.*

*In the case of multi-institutional affiliations, all participants’ institutions must provide this form.*

*Please provide the name and title of the grants or business office representative who provided you with the acknowledgement form.*

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| **ELIZABETH ANN OLPHIE**, DIRECTOR, OFFICE OF SPONSORED PROGRAMS AND RESEARCH ADMINISTRATION, VALDOSTA STATE UNIVERSITY |