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| **Assurance of Student Learning Report****2021-2022** |
| *Ogden College of Science and Engineering* | *School of Engineering and Applied Sciences* |
| *Computer Science 117* |
| *Guangming Xing* |

***Is this an online program***? [ ]  Yes [x]  No

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| ***Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages.*** |
| **Student Learning Outcome 1: Graduates will be able to communicate in oral and written form at a level commensurate with that of students completing a Master’s degree.** |
| **Instrument 1** | **Oral presentations in CS 543.** |
| **Instrument 2** | **Project documentation in CS 543.** |
| **Based on your results, check whether the program met the goal Student Learning Outcome 1.** | **[x]  Met** | **[ ]  Not Met** |
| **Student Learning Outcome 2: Graduates will be able to design and implement solutions that develop critical thinking skills that marks them better able to address concerns in the society.** |
| **Instrument 1** | **Term project in CS 543.** |
| **Based on your results, check whether the program met the goal Student Learning Outcome 2.** | **[x]  Met** | **[ ]  Not Met** |
| **Student Learning Outcome 3: Graduates will be well prepared for further studies or for employment in schools, government, or industry and be aware of opportunities for further graduate studies or employment both nationally and internationally.** |
| **Instrument 1** | **Students seeking employment will receive a job offer within one year after graduation. Graduates seeking admission to a doctoral program will be successful within one year after graduation.** |
| **Instrument 2** | **Graduating students indicate that they have been made aware of opportunities for further graduate studies or employment.** |
| **Based on your results, check whether the program met the goal Student Learning Outcome 3.** | **[x]  Met** | **[ ]  Not Met** |
| **Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)**  |
| The assessments indicates that our program is well aligned with the success of the students. |

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| **Student Learning Outcome 1** |
| **Student Learning Outcome**  | Graduates will be able to communicate in oral and written form at a level commensurate with that of students completing a Master’s degree. |
| **Measurement Instrument 1**  | CS 543 project presentation. |
| **Criteria for Student Success** | Graduate Studies will receive an average rating of at least 3 on 4-point scale in CS 543 project presentations. |
| **Program Success Target for this Measurement** | 80% | **Percent of Program Achieving Target** | 5 out of 5, 100% |
| **Methods**  | **Project presentation in CS 543 are graded using the following rebrics. All five students achieved 4/4 in the presentation.** |
| **Measurement Instrument 2** | **Project documentation in CS 543.** |
| **Criteria for Student Success** | Graduate Students will demonstrate the ability to communicate concepts in computer science by receiving an average 3 or better on 4-point scale. |
| **Program Success Target for this Measurement** | **80%** | **Percent of Program Achieving Target** | **5 out of 5, 100%** |
| **Methods** | **Project documentation in CS 543 are graded using the appended rubrics. All five students achieved 3 or 4 in the documentation.** |
| **Based on your results, highlight whether the program met the goal Student Learning Outcome 1.** | **[x]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| In the prior assessment cycle, no changes are suggested after the presentation of the assessment result. The program will discuss the assessment results at the start of the fall semester. Actions, if needed will be implemented in the fall and spring semester.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| Assessnent goals achieved. No followup needed. |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| When will this outcome be assessed again? It is perfectly fine to not assess every outcome every year; however, it is important to note *when* it will be assessed again. Continue the assessment. |

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| **Student Learning Outcome 2** |
| **Student Learning Outcome**  | Graduate Studies will be able to design and implement solutions that develop critical thinking skills that marks them better able to address concerns in the society |
| **Measurement Instrument 1** | **NOTE: Each student learning outcome should have at least one direct measure of student learning . Indirect measures are not required.****Term project in CS 543.** |
| **Criteria for Student Success** | Graduate students will receive an average rating of at least 3 on 4-point scale. |
| **Program Success Target for this Measurement** | 80% | **Percent of Program Achieving Target** | 5 out of 5, 100% |
| **Methods**  | The instructor for CS 543 assessed the design and implementation of the assigned term project.There are 5 students in CS 543 class. 5 out of 5 students received 3 or better. |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.** | **[x]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.) |
| In the prior assessment cycle, no changes are suggested after the presentation of the assessment result. Due to the course rotation changes, the assessment will be conducted in CS 543 or CS 543.The program will discuss the assessment results at the start of the fall semester. Actions, if needed will be implemented in the fall and spring semester. |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| Assessnent goals achieved. No followup needed. |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| When will this outcome be assessed again? It is perfectly fine to not assess every outcome every year; however, it is important to note *when* it will be assessed again. Will continue with CS 560 or CS 543. It was determined that CS 549 will not be used in program assessment in the future. |

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| **Student Learning Outcome 3** |
| **Student Learning Outcome**  | Students will be well prepared for further studies or for employment in schools, government, or industry and be aware of opportunities for further graduate studies or employment both nationally and internationally. |
| **Measurement Instrument 1** | **NOTE: Each student learning outcome should have at least one direct measure of student learning . Indirect measures are not required.****Exit survey/interview.** |
| **Criteria for Student Success** | Students seeking employment will receive a job offer within one year after graduation. Graduates seeking admission to a doctoral program will be successful within one year after graduation. |
| **Program Success Target for this Measurement** | 80% | **Percent of Program Achieving Target** | 100% |
| **Methods**  | The graduate coordinator interviewed the students before they graduate. No outcomes from the course work are used in this measure. |
| **Measurement Instrument 2** | **Exit survey/interview.** |
| **Criteria for Student Success** | Graduating students indicate that they have been made aware of opportunities for further graduate studies or employment |
| **Program Success Target for this Measurement** | **80%** | **Percent of Program Achieving Target** | **100%** |
| **Methods** | The graduate coordinator interviewed the students before they graduate. No outcomes from the course work are used in this measure. |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.** | **[x]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| In the prior assessment cycle, no changes are suggested after the presentation of the assessment result. The program will discuss the assessment results at the start of the fall semester. The program decides to continue with the assessment measures. |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| Assessnent goals achieved. No followup needed. |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| Will continue the current assessment plan. |

Project presentation rubrics

Students should get 9 or better out of 12

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| **Evaluation item** | **1** | **2** | **3** |
| Structure of the Presentation | Order of topics is unclear and presentation is unstructured.  | The topics are not in a good order and/or topics are missing which should have been addressed. Presentation deviates from given time frame. | Outline is presented to audience and includes an introduction and a summary/conclusion. Presentation covers the topic in logical order. Presentation stays within allotted time frame. |
| Understanding of Topics | Substantive information is inaccurate. Examples do not clarify the topic. | Some errors are made throughout the presentation. Examples are not appropriate to illustrate important concepts. | No significant errors are made. Appropriate terminology is used and explained where needed. Examples help the audience to understand the presented concepts. |
| Visual Aids | No visual aids are used, or they are poorly prepared. | Visual aids contribute little to the understanding of the presented topics. They contain too much and/or badly formatted information, are visually confusing or contain info which the presenter skips. | The visual aids support the presentation effectively and important topics stand out clearly. The aids are well organized. |
| Presentation Skills &Response to Questions | The presenter is lacking most basic presentation skills. | The presenter often depends on written information and does not establish a rapport with the audience. Questions are not handled well. | The presenter maintains eye contact and talks to the audience and ensures that the audience can see and hear the presentation. The presenter can answer questions.  |

Project documentation rubrics

Students should get 9 or better out of 12

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| **Evaluation item**  | 1 | 2 | 3 |
| **Introduction:** **Problem Statement**  | No introduction of problem statement  | Problem statement is introduced with certain abruption  | Problem statement is introduced clearly  |
| **Breadth and depth**  | No enough neither in breadth or depth  | Breadth and depth are not well balanced, e.g., only focusing on the study area without a broader context, or only having a few topics presented without any focus  | Good balanced between breadth and depth, e.g., more than two related topics are discussed with a focus on a theory or technique within the proposed study area  |
| **Writing**  | Persistently unclear and many grammar errors.  | At least half of writing is clear but with many grammar errors  | Majority of writing is clear and with a few grammar errors  |
| **Organization**  | More than one section (e.g., Introduction, Conclusion, etc.) are missing and sections are disorganized.  | One section is missing and sections are unbalanced.  | Sections are completed, well organized, and well balanced.  |

Project Grading Rubrics

Students should get 3 out of 4.

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| **Performance Indicator**  | **1** | **2**  | **3** | **4** |
| **Final Deliverable**  | The final deliverable does not satisfy most of the requirements. Poor documentation. | The final deliverable does not satisfy some major requirements. Major components are missing in the final documentation. | The final deliverable satisfied most of the requirements. Missed minor components. Presents all required items at the acceptable level of quality. | The final deliverable satisfied almost all of the requirements. Presents all required items at the acceptable level of quality. |

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| **Program name:** | Computer Science |   |  |  |
| **Department:** | School of Engineering and Applied Sciences |  |  |
| **College:** | Odgen |   |   |  |  |
| **Contact person:** | Guangming Xing |   |  |  |
| **Email:** | guangming.xing@wku.edu |   |  |  |
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| **KEY:** |  |  |  |  |  |
| I = Introduced |  |  |  |  |  |
| R = Reinforced/Developed |  |  |  |  |  |
| M = Mastered |  |  |  |  |  |
| A = Assessed |  |  |  |  |  |
|  |  |  | **Learning Outcomes** |  |  |
|  |  |  | **LO1:** | **LO2:** | **LO3:** |
|  |  |  | Graduates will be able to communicate in oral and written form at a level commensurate with that of students completing a Master’s degree. | Graduates will be able to design and implement solutions that develop critical thinking skills that marks them better able to address concerns in the society. | Graduates will be well prepared for further studies or for employment in schools, government, or industry and be aware of opportunities for further graduate studies or employment both nationally and internationally. |
| **Course Subject/Core Course** | **Number** | **Course Title** |   |   |   |
| CS | 500 | Research Methods and Projects | I | I | I |
| CS  | 445G | Operating System II |   | I |   |
| CS  | 530 | Automata Theory and Compiler Construction | R | R | I |
| CS | 543 | Advanced Database Systems | M/A | M/A | M |
| CS | 549 | Analysis of Algorithms | M | M | M |
| CS | 560 | Software Engineering and Project Management | M/A | M/A | M |