SEMESTER PROJECT – Maverick With Saddle, Bridle, And Blanket

1. Requirements

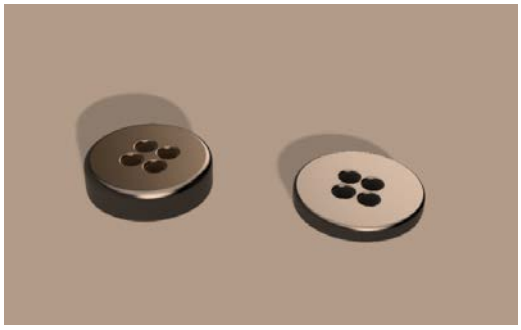
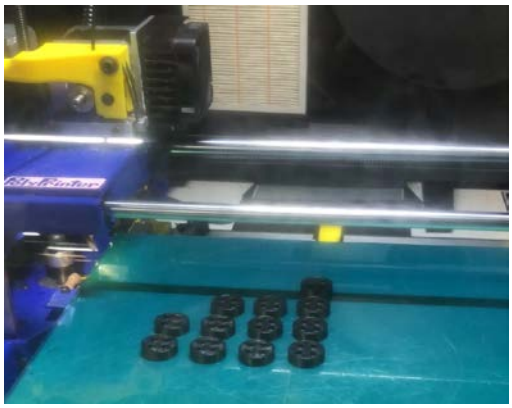
Project ID	IE4340-Spring 19	**Date**	01/14/19 – 05/03/19
Project Name	IE 4340 Maverick With Accessories 		
Version History	1.0 01/14/19 – Initial Requirements Statement 1.1 04/04/19 – Clarified Update 4 1.2 04/04/19 – Fixed mistake deleted Update objectives due to fat finger 1.3 04/22/19 – Added detail to Update 5		
Project Description	The purpose of the IE 4340 Semester Team Project is to expose undergraduates to working within a team in a laboratory setting (UTA FabLab). The UTA FabLab will keep track of materials and ask student participants to complete surveys on the equipment used. Dr. Cantu will track and evaluate the students' use of project management tools and deliverables.		

Project Requirements	**Primary** • Team Logo: Teams will design a unique logo to represent their team. The logo will be embroidered on either the saddle, blanket, or accessory. The FabLab Embroidery machine must be used. • Sewing: The team will use the FabLab sewing center to sew the project. Should a team want to sew at home they must attend, and pass a sewing certification class. • Additive & Subtractive Manufacturing: Teams will use one these processes on the project, the FabLab Mill, or 3D printers. o Horseshoes must be designed and attached to the hooves o Horseshoes must be removable from hooves • 2 color screen print: Teams will use 2 colors (together or on separate pieces) on the fabric for the maverick. The FabLab Screen Printer must be used. • Sewing Pattern: **Vogue V9194** sewing pattern will be used. Teams may use this Unicorn pattern, but will still be responsible for the saddle, bridle, and blanket. Teams may check out the pattern from Dr.Cantu for copying (**Do not cut the pattern**). Teams may also buy their version of the pattern at their own expense (No reimbursement). • Kiln: Teams must use the kiln to design eyes with a pupil (No soulless black eyes allowed). o The eyes must have eye-pieces (something to hold the eyes) designed for them, don't just glue the eyes to the fabric. • Accessories: Teams will design, and craft wooden accessories (Surprise Me!) using the FabLab. • Final Product: During final presentation teams must show a fully functional Maverick with accessories. • Quality: Dr. Cantu will review the final product, & review how well the sewing pattern instructions were followed. o The horses must stand on their own **Secondary** • Embellishment: Teams may embellish their Maverick or/and accessories with UTA pride for up to 3% extra credit. Embellishment must be part of the process & approved by Dr. Cantu
Project Boundaries	The sewing template will be purchased by Dr. Cantu and all teams may borrow it for up to 3 days. The materials needed at the FabLab will covered by Dr. Cantu's expense account. Should any other materials be needed Teams must have approval from Dr. Cantu and if approved a reimbursement will be submitted.
Project Deliverables	• Team Updates – See Below & Syllabus for dates & documents • Team Documents – See Below & Syllabus for dates & documents • Final Product Show during final presentation
Project Constraints	The Teams must complete the project using the FabLab resources and no 3rd party outsourcing will be allowed.

Project Assumptions	Material cost will be what the FabLab charges & what charges Dr. Cantu Approves Labor will depend on the classification of the student: -Senior $15/hr -Junior $14/hr -Others $10/hr
Initial Project Organization	Team members will be assigned using the self-skill assessment and student recommendations as a class assignment.
Fund Limitation	If you spend too much at the FabLab Dr. Cantu will be notified
Approval Requirements	Approval from Dr. Cantu is needed if materials are not purchased from the FabLab and reimbursement is requested.

2. Requirements Definitions

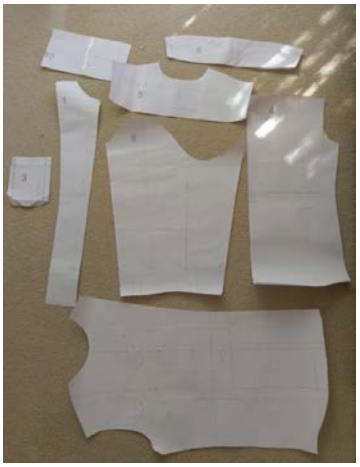
Team Logo	Team Logo will be created by the team (example below) using any software which works with vectors.  Team Logo will embroidered using the FabLab machinery (Embroider below) 

Sewing	The team will use the FabLab sewing center to sew the shirt. Should the FabLab sewing center not be appropriate please notify Dr. Cantu so he may discuss the issue with the Library.
Additive & Subtractive Manufacturing:	Teams will one of each process on the project, example below. Teams may use the design software they are most proficient with. The FabLab Mill, & 3D printers must be used.  Prototype design using Autodesk Fusion 360  3D Printed Buttons

Screen Printing	Teams will (example below) use 2 colors of their choice for patterns on their Maverick. Teams may use one color on different parts of the maverick or use both colors on same piece. The FabLab Screen Printer must be used.

One Color Screen Print

Two Color Screen Print

Sewing Pattern	**Vogue V9194** sewing pattern will be used, teams have the option of pattern C or D. Teams may check out the pattern from Dr.Cantu for copying (**Do not cut the pattern**). Teams may also buy their version of the pattern at their own expense (No reimbursement).  Traced Patter of M6932
Wooden Accessories	Teams will design, accessories for their maverick. The FabLab wood shop must be used.
Final Product	During final presentation teams must show/wear a fully functional shirt, & hanger. Documentation for final presentation is due before the presentation, & the shirt will be due when teams present. Teams will randomly draw straws to see what they present in.
Quality Check	Dr. Cantu will review the final product, & review how well the sewing pattern instructions were followed. The sewing patterns have steps to follow in regards on to hem, cut the collar, etc… All good faith attempts to follow the instructions will count towards the quality check.

Embellishments	Teams may embellish their shirts at their own cost for up to 3% extra credit. Embellishments must be submitted for review to Dr. Cantu during the brainstorming phase for approval.   

3. Deliverables Definitions

Team Update 1 Ideas & Feasibility	Teams will present updates in power point on the indicated date (check syllabus) in class. All team members will be present, not all team member need present due to the shorten time frame. Team members who do not show up will be assigned a zero for lack of participation. Update 1 will include: • Brainstorming ideas over all requirements, sewing may be left out. This will include possible embellishments, and a backup design should time/materials etc. • RACI Chart for teams • Rough Draft of Statement of Work (SoW) • Rough Draft of team evaluations • Rough Draft of team meeting minutes • Ideas on how Inform(s) will be tracked
Team Docs. 1	Teams will submit document(s) to the TA by due date (check syllabus). Update 1 will include a report with the following: • One paragraph write up on each requirement, and possible embellishment. • Write up on roles and responsibilities along with RACI charts • SoW • Team evaluation form • Team meeting minutes • Team policy on inform tracking between teammates
Team Update 2 Design	Teams will present updates in power point on the indicated date (check syllabus) in class. All team members will be present, not all team member need present due to the shorten time frame. Team members who do not show up will be assigned a zero for lack of participation. Update 2 will include: • Final Design Decisions on all requirements o Embellishments o Color o Dimensions • Work Breakdown Schedule (WBS) • Milestone Schedule
Team Docs 2	Update 2 will include a report with the following: • WBS • Milestone Schedule • Evaluations for all team members • Meeting Minutes • SOW - Final
Team Update 3 Prototype	Teams will present updates in power point on the indicated date (check syllabus) in class. All team members will be present, not all team member need present due to the shorten time frame. Team members who do not show up will be assigned a zero for lack of participation. Update 3 will include: • Prototypes of all requirements (Show prototypes in class) • GANTT Chart – Baseline • Evaluation walk through - Show me how, & what docs your team used to make an evaluation

Team Docs 3	Update 3 will include a report with the following: • Prototype design files • GANTT Chart • Evaluations for all team members • Meeting Minutes • MS Project File(s) • Change Management
Team Update 4 Internal Review	Teams will present updates in power point on the indicated date (check syllabus) in class. All team members will be present, not all team member need present due to the shorten time frame. Team members who do not show up will be assigned a zero for lack of participation. Update 4 will include: • AoA with CP • Discuss in detail tasks on CP • Slack/Float Analysis • PERT Analysis (use 68, 95, 99.7) • Crash Schedule • EVM Data – See PPT
Team Docs 4	Update 4 will include a report with the following: • Documentation & pics of all prototypes • Change Management Justification documentation • Updated WBS, Milestones, GANTT Chart, & electronic files • Prototype Design Files • Evaluations for all team members • Meeting Minutes • AoA with CP • Discuss in detail tasks on CP • Slack/Float Analysis • PERT Analysis (use 68, 95, 99.7) • Crash Schedule • EVM Data – See PPT

Final Docs	Final Documentation will include the following: • Final Report with descriptions (one document) o Title Sheet, Table of contents, introduction, etc… o RACI Charts Did these work? Why? o Team Evaluation Process - Did these work? Why? o WBS, Milestones, Final GANNT Chart - Did these work? Why? o PERT & Critical Path - Did these work? Why? o Crash Schedule - Did these work? Why? o Initial Brainstorm/Design o Software used for Project with brief explanation and pics/diagrams o Prototype – Did this change from the Design Phase? Why? o Final Product – Did this change from the Prototype Phase? Why? • Appendices (put these at the end of Final Report) o Team Evaluations – All o Team Meeting Minutes – All o Change Management Plan o Describe the each FabLab process used in Detail ▪ Show pics ▪ Describe process & software used ▪ Present Constructive feedback for the FabLab to make their stations better • Files o MS Project Files o Prototype Design Files
Final Presentation	Teams will present updates in power point on the indicated date (check syllabus) in class. All team members will be present, not all team member need present due to the shorten time frame. Team members who do not show up will be assigned a zero for lack of participation. (Each team will have **20 minutes then questions**) o Introduction – team name, members, project, etc… o RACI Charts – Did these work? If not what problems arose? o Team Evaluation Method - Did this work? If not what problems arose? o WBS, Milestones, Final GANNT Chart - Did this work? If not what problems arose? o PERT vs. Critical Path – How were values obtained? o BAC vs. Actual Cost, Crashing what if would have cost & how much time you could save o Initial Brainstorm/Design o Prototype – Did this change from the Design Phase? Why? o Final Product – Did this change from the Prototype Phase? Why? o Feedback for the FabLab: what you liked & what they can do better.