Developing Effective Instructional Skills: The Master Educator Program at SUNY Buffalo State

Lorena D. Mathien

Business Department, State University of New York Buffalo State, United States.

Abstract

With higher education facing budget cuts and declining enrollment, instructor effectiveness continues to be crucial, particularly in a state of increasing workloads with restricted resources. However, the dilemma of how to develop effective instructional skills while still maintaining a research agenda stems from a larger contradiction within professional disciplines; teaching is essential to the profession but holds a devalued position compared to research. It is not enough for an educator to recognize that teaching and research are mutually reinforcing, universities must also recognize and support this reality. Understanding that we must learn to be good instructors, even as teaching is devalued, led our School of Professions (SOP) to reflect on how we can develop strategies for becoming effective educators while still fulfilling our research (and service) agenda. With the Master Educator (MEP) program, our school is developing internal talent via instructional coaching between our School of Education (SOE) and our School of Professions. Research indicates that traditional forms of professional development are not effective. In turn, research on instructional coaching in K-12 setting has indicated a much higher implementation rate than traditional approaches to professional development; however, to our knowledge, there have been no attempts at implementing instructional coaching at the university level. The MEP is the first program to implement this practice at the university level.

Keywords:; Business; Education; Instructional Coaching; Mentoring.

1. Introduction

Current conditions in the United States indicate continued higher education budget cuts in many states, and thus, teacher effectiveness continues to be crucial in a realm of potentially increased workloads with constrained resources (Roach, 2014). Much of the research involving quality of teaching in post-secondary business is based on student perceptions, with scarce literature covering teachers' formal training to teach, much less their perception of their own skills and abilities in the classroom.

Skinner (1956) stated that college teaching is the only profession for which there is no professional training. University Ph.D. programs in the United States emphasize content and research-related skills, while teaching skills are what are immediately put into practice. Recent literature has seen an increase in the area of teaching the teacher how to teach. Walstad and Becker (2003) stated that "Teaching a course or leading a recitation section is an important instructional duty that, if not handled well, can hurt a department by increasing student complaints, decreasing majors, and negatively affecting employment." Marx et al. (2016) suggested that the the world's largest business accreditation agency, the Association to Advance Collegiate Schools of Business (AACSB) International, cultivate teaching accountability standards of business doctoral programs. There are other academics that believe a more restrained approach to accreditation standards is warranted (Lewicki & Bailey, 2016). Regardless, SUNY Buffalo State has seen the need to improve teacher performance in the classroom as an effectiveness and student retention effort. Since accreditation changes are not imminent, the change must be at a personal, and eventually college-wide, level.

Academia creates a tension which sociologist Jodi O'Brien (2006) called "schizophrenic state of academe." Colleges and universities stress the importance of one third teaching, one third scholarship, and one third service, when, in reality, faculty members know that research is the primary area of responsibility, especially when striving for tenure and promotion. Irby (2013) stated that becoming effective teachers does not distract from scholarship. Instead, it enhances scholarship by enabling researchers to use appropriate terms and examples needed communicate clearly and effectively. While teaching and scholarship should be mutually reinforcing, junior faculty especially internalize that publications and grants are the accomplishments that are highlighted in reaching tenure and promotion.

2. Master Educator Program (MEP) at SUNY Buffalo State

2.1. Purpose of Study

Examples of teacher training are emerging. The faculty of the School of Agriculture of the Pennsylvania State College enacted a project called "Teaching College Professors to Teach" in which ten lessons were given during a one-week program by Dr. William Kilpatrick of Teachers College, Columbia University. In addition, LEGO Education has a U.S. Education Masters Educators program, in which early learning and high school educators use LEGO solutions to enable success of students via hands-on learning experiences (Powers, 2019). At SUNY Buffalo State, the Master Educator Program (MEP) was developed and commenced in September 2018, with the first cohort at the end of its two-vear term. The mission of the program is as stated, "By enlisting Master Educators as agents of change, our ultimate goal is to organically grow an extraordinary culture within the School of Professions for both faculty and students" and the vision is "To provide every School of Professions major with a transformative educational experience that inculcates and inoculates them with 21st century skills." In short, the program aims to future-proof every student. The School of Professions hopes to eventually achieve national acclaim for educational practices that successfully close the gap between 21st century workplace demands and a 21st century education.

The program was developed as an action step out the most recent strategic plan. A cohort of six professors was chosen amongst the elite teachers within the School of Professions. Each of these professors was paired with an instructional coach from the School of Education. In year one, the cohort and the coaches attended monthly training modules including: foundation setting, emotional intelligence, high-leverage practices, high-impact practices, classroom management, 21st century skills, understanding today's students, creative thinking, and utilizing technology. Coaching sessions between each coach and mentee were established based on an individual basis and need. Summary of the modules included: 1) techniques for understanding our current generation of students, and how they learn and apply knowledge, 2) the skills that employers are seeking in students and ways to bridge that gap, ensuring students are exiting university with a skill set that makes them employable and successful in the current work force, and 3) incorporating the content from the previous areas into our courses in an effective manner that engages students and facilitates learning. In year one, each cohort member was responsible for implementing, at a minimum, one educational approach into one class. The level and degree of implementation varied across cohort members. An example of a course implementation plan for year one can be seen in Appendix A.

Year two of the program continued to add training, while focusing on readying the cohort to transition from mentee to mentor in year three. Year two modules included: teaching

practices, mentoring, classroom management, distance learning and related technology (amid the Covid19 pandemic), leadership practices, and, finally, a closeout celebration. Experts in each of the content areas acted as instructors and facilitators. The cohort used the class sessions to practice skills, which were then applied outside of the classroom. An array of techniques was applied within their courses. Learnings from the applications were shared amongst the cohort and with the university and leadership board. Cohort two recruitment is now in process and will cross all schools within the university.

Coaching may have different degrees of formality and structure. Facilitative coaches see coachees as equals who make most, if not all, decisions during coaching. Directive coaches are the opposite, and strive to transfer knowledge to the coachee. The dialogical coach uses a balance of advocacy and inquiry. They ask insightful questions while imparting their knowledge. This coaching style has been found to be an effective model between our colleagues. By creating a model in which designated space and times were established for coaches and coaches to come together to solve problems and to share teaching experiences, we are creating a culture that recognizes the importance of teaching and support networks. The formal peer mentorships provide the School of Professions faculty with accessible resources for teaching-related questions, modeling, and techniques. To our knowledge, no other post-secondary institutions have adopted a model of teacher training that includes a peer-to-peer coaching model.

2.2. Methodology

As an initial study, final grades, both in whole and by grading category, were captured before and after implementation of educational strategies (k = 2). The sample size (n) per group ranged from 38 to 77. Use of ANOVA is appropriate if n - k > 0. In addition, the number of A's through F's given per semester were also captured. Grades were analyzed using Analysis of Variance (ANOVA) techniques, comparing each of the graded means of sections before and after implementation. However, the ANOVA does not tell you where the difference lies, thus a t-test was conducted to test each pair of means.

2.3. Results

Based on the ANOVA results in table 1, the null hypothesis can be rejected at the 5% level, and we can conclude that the means are not all equal, indicating that there was a difference between the means of the three semesters of data captured.

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	30495.47	7	4356.49	204.29	1.95E-14	2.66
Within Groups	341.19	16	21.32			
Total	30836.66	23				

Table 1. ANOVA Results

Source: Mathien (2020)

The t-tests were used to test the null hypothesis that the means of two populations are equal. T-tests were conducted across all pairs of means, and found to be insignificant at the 5% level for all pairs; therefore, we fail to reject the null hypotheses that the means are equal for all pairings. When testing the last two semesters, when the most changes were implemented, at the 10% level, the results were found to be partially significant, thus we are unable to conclusively reject or fail to reject the null hypothesis at this level. The results from this test can be seen in table 2.

Essentially, an ANOVA provides a statistical test to determine if the means of several groups are all equal and, as a result, generalizes t-test to more than two groups. The t-test is used when determining whether two averages or means are the same or different. An ANOVA can be more useful than a two-sample t-test as it has a lesser chance of committing a type I error. The ANOVA is preferred when comparing three or more averages or means. A t-test has more odds of committing an error the more means are used, which is why ANOVA is used when comparing two or more means.

While the results are inconclusive and do not support statistical changes in the overall averages between semesters, when looking at the ANOVA results or when looking at the raw data, means in all areas are improved after implementation of MEP techniques. The final semester is also the first semester is which no students failed the course. Student qualitative feedback was also consistent with improvement satisfaction of the course.

3. Conclusion and Recommendations

Learning to be an effective educator is an ongoing process. The academic model that doctoral students encounter in their Ph.D. programs is limited, and the students that they ultimately teach are typically quite different than the students in their program. Many new faculty assume they will be teaching dedicated, academically-oriented students, and are often surprised to find students who have trouble with writing papers and reading, and many who have little enthusiasm for learning. It is important for educators to develop strategies for engaging 21st century students.

Developing Effective Instructional Skills: The Master Educator Program at Buffalo State

Descriptive Statistics						
VAR	Ν	Mean	Std Dev	Var	Min	Max
Final Grades Spring 2019	77	81.98	16.99	288.85	0	98
Final Grades Fall 2019	38	87.47	16.44	270.29	0	98.15
t-test assuming unequal variances	(heterosc	edastic)				
Hypothesized Mean Difference	0					
Mean Difference	-5.48					
Variance (Welch-Satterthwaite)	282.77					
Test Statistic	1.66					
Degrees of Freedom	76					
H1: Mu1 - Mu2 \neq 0 / Not equal (t	wo-tailed)				
t Critical Value (10%)	1.66	p-value	0.10	H1 (10%)	Rejected	
H1: Mu1 - Mu2 < 0 / Less than (1	ower-taile	ed)				
t Critical Value (10%)	-1.29	p-value	0.94	H1 (10%)	Rejected	
H1: Mu1 - Mu2 > 0 / Greater than	n (upper-ta	ailed)				
t Critical Value (10%)	1.29	p-value	0.05	H1 (10%)	Accepted	

Table 2. T-Test Results

Developing institutional support for preparing faculty to teach is an important step for both teaching effectiveness and student retention. The MEP is a move to improving student education, creating students that are better prepared to enter the workforce, and faculty members that are supported in their balance of the three pillars of teaching, service, and scholarship.

This study is an initial look at the implementation of educational techniques learned within the MEP across three semesters. Data will continue to be tracked, and future research will also include control variables for overall student GPAs to account for lower admission standards due to decreased enrollment numbers.

References

- Irby, C.A., Fuist, T.N., Rumpf, C., Jackson, C.L., Polasek, P.M., & Van Altena, A.S. (2013). Teaching Each Other to Teach. *Contexts*, 12(3), 84–87.
- Lewicki, R.J. & Bailey, J. (2016). A Deeper Dig: Rejoinder to "Isn't It Time We Did Something About the Lack of Teaching Preparation in Business Doctoral Programs?". *Journal of Management Education*, 40(5), 516-523.
- Marx, R.D., Garcia, J.E., Butterfield, D.A., Kappen, J.A., & Baldwin, T.T. (2016). Isn't It Time We Did Something About the Lack of Teaching Preparation in Business Doctoral Programs? *Journal of Management Education*, 40(5), 489–515.
- O'Brien, J. (2006). "Reorganizing the Contradictions of Teaching and Research." Pp. 16-38 in *Excellent Teaching in the Excellent University* edited by Jerome Rabow. Bethesda, MD:Academica Press.
- Powers, A. (2019). "LEGO Education Launches An Innovative Teacher's Program." Forbes, February 10, 2019.
- Roach, J., Milkman, M., & McCoy, J. (2014). "Recent business doctorates' teacher training and perceptions of their preparedness to teach business courses." Academy of Educational Leadership Journal, 18(2), 45-60.
- Skinner, B.F. (1956). A case history in scientific method. American Psychologist, 11(5), 221–233.
- Walstad, W.B. & Becker, W. (2003). "The Instructional Use and Teaching Preparation of Graduate Students in U.S. Ph.D.-Granting Economics Departments." *American Economic Review*, 93(2), 449-454.

Strat Planning OM Lecture Value Chain Strate Bit Planstorm and dot vo first class Stratey Prep Guide Ticket out Iffer class Service OER Text Prep Guide Ticket out Iffer class Service OER Text Prep Guide Ticket out Iffer class Product/ Exture Frep Guide Ticket out Iffer class Service Prod/Proc Matrix OER Text Prep Guide Ticket out Iffer class Service Prod/Proc Matrix OER Text Prep Guide Ticket out Iffer class Service Prod/Proc Matrix OER Text Prep Guide Ticket out Worked expl Product Layout OER Links (CT, C, CTM, CM) Quit Goldratt Game Minute Evals* Sigma OER Links (CT, C, CTM, CM) Quit Goldratt Game Minute Evals* Sigma OER Links (CT, C, CTM, CM) Quit CT, C, CTM, AA, L) Pret of Class participation grade Sigma OER Links (CT, C, CTM, AA) Quilty	<u>Module</u>	Topics	Blackboard	Pre Assess	Post Assess	Class Act	<u>Semester</u>	Evidence-Based Practices
value Chain OFR Links (CT, C, CTM, CM) Quiz (CT, C, CTM, CM) H White Chain H White Chain Perf Lecture HW (CT, C, CTM, CM) Quiz (CT, C, CTM, CM) R2 - Each Student - Index Grad Comprise Prep Guide Texter V Prep Guide Value Chain Quite Poster 's 5 forces Comp Adv OR Links (CT, C, CTM, CM) Quiz PEST, CA Quite Chain Model on Quite Strat Planning Lecture Value Chain Value Chain Yalue Chain Yalue Chain Stratey Prep Guide Texter out Value Chain Texter out Yalue Chain Prod/Proc Matrix OER Text Prep Guide Texter out Texter out Texter out Texter out ot class Prod/Proc Matrix OER Text Prep Guide Texter out Texter out ot class Texter out ot class Steption Prod Grade Texter out Goldratt Game Texter out ot class Prod/Proc Matrix OER Text Prep Guide Texter out Rodiffermit closed in Rading andiffermit closed on Rad		OM	OEP Text		Ticket out			
Value Chain OFR Links (CT, C, CTM, CM) Quiz (CT, C, CTM, CM) and 357, Cach student - index Gac Acar Standard - index Stack Park - Each student - index Stack - index Stack - index - index Stack - index Stack - index -		OM	OER Text	Prep Guide	licket out		Team project	
Perf Lecture HW Comp Adv Prep Guide Call Second		Value Chain	OER Links	(CT, C, CTM, CM)	Quiz		(CT, C, CTM, L)	
OM Prop Guide You fail is a constrained for 2 You fail is a constrained for 2 <thyou 2<="" a="" constrained="" fail="" for="" is="" th=""> You fail is a co</thyou>								
OverviewPrep Guidevoor de latent do?Comp AdvOER TextPrep GuideTicket outPretre's 5 Forces21 When do you feelComp PrioritiesOER Links(CT, C, CTM, CM)QuizPEST, CAVoor geet to be a leader?OMStrat PlanningLectureVoor geet to be a leader?Prep GuideTicket outPrep GuideOMMfgOER TextPrep GuideTicket outPrep GuidePrep GuidePrep GuideStrat PlanningOER TextPrep GuideTicket outPrep GuidePrep GuidePrep GuideServiceOER Iniks(CT, C, CTM, CM)QuizFirst classPrep GuidePrep GuidePrep GuideServicePrep GuideTicket outVoorked explPrep GuidePrep GuidePrep GuidePrep GuideServicePrep GuideTicket outVoorked explPrep GuidePrep GuidePrep GuidePrep GuideServicePrep GuideTicket outVoorked explPrep GuidePrep GuidePrep GuidePrep GuideProcess DesignLecturePrep GuideTicket outVoorked explPret of ease prep GuidePret of ease prep GuidePret of ease prep GuidePret of ease prep GuideServicePrep GuideTicket outVoorked explPret of ease prep GuidePret of ease prep GuidePret of ease prep GuidePret of ease prep GuideServiceServicePrep GuideTicket outVoorked explPret of ease prep GuidePret GuidePret of ease prep	OM	Perf	Lecture		HW			
Comp AdvDER TextPrep GuideTicket outPorter's 5 ForcesCarrel for? 3) When do you laught as tchol? 4) WorkComp PrioritiesOR Links(CT, C, CTM, CM)QuizPEST, CASo you get to be a leader?MStrat PlanningLectureValue ChainSit Plandie?MfgOER ToxtPrep GuideTicket outInterteaching - beginning of each moduleSorviceOER ToxtPrep GuideTicket outInterteaching - beginning of each moduleProduct/EactureInterteaching - beginning of each moduleInterteaching - beginning of each moduleSorviceLectureInterteaching - beginning of each moduleInterteaching - beginning of each moduleProduct/EactureInterteaching - beginning of each moduleInterteaching - beginning of each moduleSorviceLectureInterteaching - beginning of each moduleInterteaching - beginning of each moduleSorviceSorviceDER ToxtPrep GuideTicket outWorked explProcess DesignPrep GuideTicket outGoldratt GameProt of Clas participation participation pradeFacility LayoutOER ToxtPrep GuideTicket outRed bead exp.Product LayoutOER ToxtPrep GuideTicket outRed bead exp.StrategeGuideOER ToxtPrep GuideTicket outRed bead exp.StrategeControl ChartPrep GuideTicket outRed bead exp.StrategeGoldrattCT, C, CTM, CM) <td< td=""><td></td><td></td><td>Prep Guide</td><td></td><td></td><td></td><td></td><td></td></td<>			Prep Guide					
Comp Priorities OER Links (CT, C, CTM, CM) Quiz PEST, CA Jaugh at school? a) With do you get to be a leader? OM Strat Planning Lecture Value Chain aff 2/Unsafe? Bit at School? a) With do you get to be a leader? OM Mrg OER Text Prep Guide (CT, C, CTM, CM) Quiz Intertacting - beginning of and Product/ Service Lecture Lecture Intertacting - beginning of and Intertacting - beginning of and Product/ Service Lecture Prep Guide Ticket out Intertacting - beginning of and Process Prep Guide CT, C, CTM, CM) Quiz Intertacting - beginning of and Process Prep Guide Ticket out Workplace Design Intertacting - begin and Process Prep Guide Ticket out Workplace Design Prep Guide Ticket out Product Layout OER Links (CT, C, CTM, CM) Quiz CT, C, CTM, AA, L) Pretorial other options: Tinker ovite/Fair/Share Kahot Six Sigma OER Links (CT, C, CTM, CM) Quiz (CT, C, CTM, AA, L) Pretorial other options: Tinker ovit								
Comp PrioritiesOER Links(CT, C, CTM, CM)QuizPEST, CAdo you get to be a leader? S) When do you feet to		Comp Adv	OER Text	Prep Guide	Ticket out	Porter's 5 Forces		
Start Planning Lecture Value Chain 5) When do you feel m OM Prep Guide (CT, C, CTM, GM) Saf2 / Unsaf2 ? Mfg OER Text Prep Guide (CT, C, CTM, GM) Interteaching - beginning of each module Product/ Service OER Text Prep Guide Interteaching - beginning of each module Service Lecture Free Guide Interteaching - beginning of each module Service Lecture Free Guide Interteaching - beginning of each module Service Lecture Free Guide Interteaching - beginning of each module Service Prep Guide Ticket out Ticket out Interteaching - beginning of each module Service Prep Guide Ticket out Ticket out Ticket out Interteaching - beginning of each module Service Prep Guide Ticket out Ticket out Ticket out Interteaching - beginning of each module Service Prep Guide Ticket out Rote out CT, C, CTM, AR, U Process Capability OER Text Prep Guide Ticket out Minute Evals*		Comp Priorities	OER Links	(CT. C. CTM. CM)	Quiz	PEST. CA		
OM #3 - Brainstorm and dot vo #3 - Brainstorm and dot vo #3 - Brainstorm and dot vo Strategy Prep Guide Ticket out Intertacking - beginning of each module Service OR Test Prep Guide Ticket out Intertacking - beginning of each module Product/ Prep Guide Prep Guide Intertacking - beginning of each module Service Prep Guide Ticket out Intertacking - beginning of each module Service Prep Guide Ticket out Intertacking - beginning of each module Services Design Prep Guide Ticket out Intertacking - beginning of each module Process Design Prep Guide Ticket out Worked expl Ticket - end of every class Process Design Lecture Prep Guide Ticket out Worked expl "Minute Evait" Faility Layout OER Test Prep Guide Ticket out Worked expl "Minute Evait" Six Sigma OER Test Prep Guide Ticket out Red head exp. Prep Guide Cot Cr, C, CTM, AA, L) Mg Prepe Guide Ticket out Red				(, -,,,				5) When do you feel most
Strategy Prep Guide (CT, C, CTM, GM) Ifrit class Mfg OER Toxt Prep Guide Ticket out Interteaching - begining of linterteaching - begining linterteaching - begining of linterteaching - begining linter		Strat Planning	Lecture			Value Chain		
Mfg OER Text Prep Guide Ticket out Service OER Links (CT, C, CTM, CM) Quiz Interteach preg guide Product// Eecture Prep Guide Complet based on readings Service Lecture Prep Guide Interteach preg guide Process Prod/Proc Matrix OER Text Prep Guide Ticket out Randomic Collect a part of class participation grade Process Process Analysis Prep Guide Ticket out Worked expl Prof class participation grade Process Analysis Prep Guide Ticket out Worked expl Prof class participation grade Process Analysis Prep Guide Ticket out Worked expl Prof class participation grade Process Analysis Prep Guide Ticket out Worked expl Pref Guide Prep Guide Prep Guide Beelgen Quality OER Text Prep Guide Ticket out Red bead exp. Potential other options: Guality OER Text Prep Guide Ticket out Red bead exp. Partnering techniques - i.e Guality			Pren Guide			(CT_C_CTM_GM)		
ServiceCFL C, CTM, CMJQuizeach moduleProduct/ DesignEdetureInteresch preg guide complete based on readings and lecture prior to class.Product/ Sev/Position MatrixOER TextPreg GuideTicket outInteresch preg guide complete based on readings and lecture prior to class.ProcessPreg/Proce MatrixOER TextPreg GuideTicket outMorie and class participation gradeProcessPreg GuideTicket outWorked explPref of class participation mutod point or "One- mutod point"	Strategy	Mfg		Prep Guide	Ticket out			
Product/ Service Lecture Interteach prog guide Interteach prog guide Design ProdUct/ Service Lecture Interteach prog guide Interteach prog guide ProdUct/ Service Vervice Lecture Interteach prog guide Interteach prog guide Service Service CER Text Prep Guide Interteach prog guide Interteach prog guide Process Process Analysis CER Text Prep Guide Ticket out Worked expl Minute Evals* Facility Workplace Design Lecture Prep Guide Ticket out Worked expl Protact Layout OER Text Prep Guide Ticket out Cert, CTM, AA, L) Protact Layout Prep Guide Forms provided and collect Sis Signa OER Text Prep Guide Ticket out Cert, CTM, AA, L) Prenetiat other options: Prenetiat other options		-						Interteaching - beginning of
Product/ DesignLecturecomplete based on reading andDesignPrep GuideTicket outIecture prior to class.Prod/Proc MatrixOER TextPrep GuideTicket outMifferent colored inkSoc/Position MatrixOER Links(CT, C, CTM, CM)QuizTicket outMifferent colored inkSoc/Position MatrixOER TextPrep GuideTicket outWorked explPart of class participation gradeProduct LayoutOER Links(CT, C, CTM, CM)QuizGoldratt GameTicket - end of every classFacilityWorkplace DesignLectureHW(CT, C, CTM, AA, L)Part of class participation "Muddy Point" or "One-Minute Evals"FacilityWorkplace DesignOER Links(CT, C, CTM, CM)QuizGoldratt GamePotential other options:GualityOER TextPrep GuideTicket outRed bead exp.Potential other options:QualityOER TextPrep GuideTicket outRed bead exp.Potential other options:MgmtProcess Capability(CT, C, CTM, CM)Quiz(CT, C, CTM, AA, L)Potential other options:MgmtProcess Capability(CT, C, CTM, CM)Quiz(CT, C, CTM, AA, L)Potential other options:MgmtProcess Capability(CT, C, CTM, CM)Quiz(CT, C, CTM, AA, L)Zts Century Skills (SOPMgmtProcess Capability(CT, C, CTM, CM)Quiz(CT, C, CTM, AA, L)X- Agility & Adopting idoalJIT & LeanDen or of ConstrationCT, C, CTM, CM)Qui		Service	OER Links	(CT, C, CTM, CM)	Quiz			
ServiceLectureIndandDesignPrep SuideInclusion with student in Discussion with student in Randomly collect as part of Discussion with student in Process DesignCER LextPrep GuideInclusion with student in Randomly collect as part of or Cass participation gradeTicket outWorked explTicket -end of every dass Part of class participation gradeFacility LayoutDER LextPrep GuideTicket outWorked explMinute Evals"Part of class participation gradeFacility Workplace DesignLecturePrep GuideTicket outRed bead exp. (CT, C, CTM, AA, L)Port of class participation gradeFacility Workplace DesignLecturePrep GuideTicket outRed bead exp. (CT, C, CTM, AA, L)Port of class participation gradeSelection Process CaspabilityOER Links(CT, C, CTM, CM)QuizCCT, C, CTM, AA, L)Portial other options: 	Product/							
Prod/Proc Matrix OER Text Prep Guide Ticket out Discussion with student in different colored ink. Randomly collect as part of class part of part of class part of clas part of class part of class part of class part of cl			Lecture					
Prod/Process Process SelectionPred SuideTicket outTicket outdifferent colored ink Randomi ycolled as part of class participation gradeSelectionProcess AnalysisPrep GuideVTicket outWorked explTicket outTicket outWorked explFacility LayoutOER TextPrep GuideTicket outWorked explPart of fass participation muddy Point" or "One- Minute Evals"Part of fass participation "Muddy Point" or "One- Minute Evals"FacilityWorkplace DesignLecture Prep GuideHWGoldratt GamePart of fass participation "Muddy Point" or "One- Minute Evals"FacilityORR TextPrep GuideTicket outRed baad exp. (CT, C, CTM, AA, L)Porners provided and collect Prep GuideSix Sigma Other StrategiesOER TextPrep GuideTicket outRed baad exp. (CT, C, CTM, AA, L)Prep Face Callect HWProcess CapabilityOER TextPrep GuideTicket outDesigning a SC21st Century Skills (SOP Majors): CT - Creative thinking, crititi thinking, problem solve C - CommunicationSCMSC PerfPrep GuideTicket outPaper airplanesCTM - Collab & teamwork GM - Adopting global mindeet (model, embrace, reflect)JIT & LeanOER TextPrep GuideTicket outWorked explITLecturePrep GuideTicket outWorked explITLecturePrep GuideCTM - Collab & teamwork GM - Adopting global mindeet (model, embrace, reflect)ITCapacity Prep Guide	Design		Prep Guide					
Sw/Position Matrix OER Links (CT, C, CTM, CM) Quiz Randomly collect as part of class part class part of class part cla		Prod/Proc Matrix	OFR Text	Pren Guide	Ticket out			
Svc/Position Matrix Process Design Process AnalysisDER Links Prep Guide(CT, C, TM, CM) Variable Puer SuideQuizClass participation grade Ticket outClass participation grade Puer SuideSelection Process AnalysisPerp GuideTicket out Prep GuideWorked explPert of Class participation "Muddy Point" or "One- Minute Evals"Pert of Class participation "Muddy Point" or "One- Wirke/Participation Class participation <td></td> <td>FIGU/FIGC Matrix</td> <td>OEK TEXT</td> <td>Frep Guide</td> <td>ficket out</td> <td></td> <td></td> <td>Randomly collect as part of</td>		FIGU/FIGC Matrix	OEK TEXT	Frep Guide	ficket out			Randomly collect as part of
Selection Process Analysis Prep Guide Ticket out Worked expl Ticket - end of every class Facility Layout OER Text Prep Guide Ticket out Worked expl Pert of class participation Facility Workplace Design Lecture HW (CT, C, TM, AA, L) Pert of class participation Sistigna OER Text Prep Guide Ticket out Red bead exp. Other Strategies OER Text Prep Guide Ticket out Red bead exp. Other Strategies OER Text Prep Guide Ticket out Red bead exp. Quality OER Text Prep Guide Ticket out Red bead exp. Mgmt Process Capability OER Text Prep Guide Ticket out Designing a SC SCM OER Text Prep Guide Ticket out Designing a SC 213 Century Skills (SOP SCM SC Perf Prep Guide Ticket out Paper airplanes CT - Crative thinking, critit thinking, crito thinking, critit thinking, critit thinking, critit		Svc/Position Matrix	OER Links	(CT, C, CTM, CM)	Quiz			
Facility Layout OER Text Prep Guide Ticket out Worked expl Part of class participation Facility Product Layout OER Links (CT, C, CTM, CM) Quiz Goldratt Game "Muddy Point" or "One-" Facility Quality OER Text Prep Guide Ticket out Red bead exp. Potential other options: Quality OER Text Prep Guide Ticket out Red bead exp. Potential other options: Quality OER Text Prep Guide Ticket out Red bead exp. Potential other options: Quality OER Text Prep Guide Ticket out Red bead exp. Potential other options: Mgmt Process Capability Prep Guide Ticket out Designing a SC Part of class participations on thinking, critit thinking, problem solve SCM OER Text Prep Guide Ticket out Designing a SC 21st Century Skills (SOP Majors) Lean OER Text Prep Guide Ticket out Paper airplanes CT Crasive thinking, critit thinking, problem solve CT Crasive thinking, critit thinking, problem solve CT Crasive thinkin								
Facity Workplace Design Lecture HW (CT, C, CTM, AA, L) Forms provided and collect Facity Quality OER Text Prep Guide Ticket out Red bead exp. (CT, C, CTM, AA, L) Sigma OR Ticks (CT, C, CTM, CM) Quiz (CT, C, CTM, AA, L) Potential other options: Minute Evals** Orther Strategies Lecture HW (CT, C, CTM, AA, L) Potential other options: Quality OR Trategies Lecture HW (CT, C, CTM, AA, L) Potential other options: Mgmt Process Capability Prep Guide Ticket out Designing a SC 21st Century Skills (SOP Mgmt Push/Pull Lecture Frep Guide CT, C, CTM, CM) Quiz (CT, C, CTM, AA) SCM OER Text Prep Guide Ticket out Designing a SC 21st Century Skills (SOP Minte Evals** Lean OER Text Prep Guide Ticket out Paper airplanes CT- C-crative thinking, critit JIT & Lean Prep Guide Ticket out Worked expl CT, C- CTM, AA) Adapting global JIT & Lean Prep Guide Ticket out Worked expl CT, C, CTM, AA) Adapting global Gapacity OER Ticks (CT, C, CTM, CM) <t< td=""><td>Selection</td><td></td><td></td><td>Pren Guide</td><td>Ticket out</td><td>Worked expl</td><td></td><td></td></t<>	Selection			Pren Guide	Ticket out	Worked expl		
Facility Design Workplace Design (Prep Guide Lecture Prep Guide HW (CT, C, CTM, AA, L) Forms provided and collect Quality Sistigma Other Strategies Quality OER Text Other Strategies SCM OER Text Other Strategies Other Strategies SCM OER Text OER Text Prep Guide Ticket out HW Red bead exp. (CT, C, CTM, AA, L) Potential other options: Think or Write/Pair/Share Kahoot Mgmt Process Capability OER Text Prep Guide Ticket out HW Designing a SC 21st Century Skills (SOP Majors): CT - Creative thinking, problem solve C - Communication SCM SC Perf Prep Guide Ticket out Lean Designing a SC 21st Century Skills (SOP Majors): CT - Creative thinking, critit thinking, problem solve C - Communication JIT Lecture Vrep Guide Ticket out Paper airplanes CT M - Colla & teamwork GM - Adopting global mindset (model, embrace, reflect) JIT Lecture Prep Guide Ticket out Worked expl U- Leadership Lean Six Sigma JIT DER Text Prep Guide Ticket out Worked expl U- Leadership Long-term Lecture OER Text Prep Guide Ticket out Worked expl U- Leadership Demand Paraneristics OER Text Prep Guide Ticket out Worked expl Distribution game Demand Panneristics OER Te		racinty Layout	OLIVICAL	Thep Guide	Heree out	Worked expr		
Design Prep Guide Quality OER Text Prep Guide Red bead exp. Other Strategies OER Links (CT, C, CTM, CM) Quiz (CT, C, CTM, AA, L) Mgmt Process Capability Incket out Red bead exp. Potential other options: Mgmt Process Capability Incket out Red bead exp. CCT, C, CTM, AA, L) Mgmt Process Capability OER Text Prep Guide Ticket out Designing a SC Effic/Respon SC OER Text Prep Guide Ticket out Designing a SC 21st Century Skills (SOP Majors): SCM SC Perf Prep Guide Ticket out Paper airplanes CT - Creative thinking, problem solve Lean OER Text Prep Guide Ticket out Paper airplanes CT - Creative thinking, critit JIT & Lean OER Text Prep Guide Ticket out Paper airplanes CT - Creative thinking, critit JIT & Lean OER Text Prep Guide Ticket out Paper airplanes CT - Creative thinking, critit JIT & Lean OER Text Prep		Product Layout	OER Links	(CT, C, CTM, CM)	Quiz	Goldratt Game		Minute Evals"
Design Prep Guide Quality OER Text Prep Guide Red bead exp. Other Strategies OER Links (CT, C, CTM, CM) Quiz (CT, C, CTM, AA, L) Mgmt Process Capability Incket out Red bead exp. Potential other options: Mgmt Process Capability Incket out Red bead exp. CCT, C, CTM, AA, L) Mgmt Process Capability OER Text Prep Guide Ticket out Designing a SC Effic/Respon SC OER Text Prep Guide Ticket out Designing a SC 21st Century Skills (SOP Majors): SCM SC Perf Prep Guide Ticket out Paper airplanes CT - Creative thinking, problem solve Lean OER Text Prep Guide Ticket out Paper airplanes CT - Creative thinking, critit JIT & Lean OER Text Prep Guide Ticket out Paper airplanes CT - Creative thinking, critit JIT & Lean OER Text Prep Guide Ticket out Paper airplanes CT - Creative thinking, critit JIT & Lean OER Text Prep	Facilty	Workplace Design	Lactura					Forms provided and collected
QualityOER TextPrep GuideTicket outRed bead exp.Six SigmaOER Links(CT, C, CTM, CM)Quiz(CT, C, CTM, AA, L)Potential other options: Think or Write/Pair/Share KahootQualityMgmtProcess CapabilityFrep GuideTicket outDesigning a SCQualitySCMOER TextPrep GuideTicket outDesigning a SCPush/PullLectureCT, C, CTM, CM)Quiz(CT, C, AA)Majors): CT - Creative thinking, critic thinking, problem solve C CommunicationSCMSC PerfPrep GuideTicket outPaper airplanesCT - Creative thinking, critic thinking, problem solve C CommunicationSCMSC PerfPrep GuideTicket outPaper airplanesCT - Creative thinking, critic thinking, problem solve C CommunicationJITLecturePrep GuideTicket outWorked explCT - Creative thinking, critic thinking, problem solve C CommunicationJIT & LecturePrep GuideTicket outWorked explAA - Agility & adaptability L - LeadershipCapacityOER TextPrep GuideTicket outWorked explCapacityOER TextPrep GuideTicket outWorked explCapacityOER TextPrep GuideTicket outWorked explCapacityOER TextPrep GuideTicket outWorked explDemandDecisions/CostsOER TextPrep GuideTicket outPlanningOER TextPrep GuideTicket outWorked expl </td <td>,</td> <td>workplace Design</td> <td></td> <td></td> <td>ПVV</td> <td>(C1, C, C11VI, AA, L)</td> <td></td> <td>Forms provided and collected</td>	,	workplace Design			ПVV	(C1, C, C11VI, AA, L)		Forms provided and collected
Other Strategies SPC/Control ChartsLecture Prep GuideHWThink or Write/Pair/Share KahootQuality MgmtProcess CapabilityFrep GuideTicket outDesigning a SCPartnering techniques - i.e clock partnersSCMOER TextPrep GuideTicket outDesigning a SCZist Century Skills (SOP Majors): CT - Creative thinking, critic thinking, problem solveZist Century Skills (SOP Majors): CT - Creative thinking, critic thinking, problem solveC- Communication CT - Creative thinking, critic thinking, problem solveC - Communication CT - Creative thinking, critic thinking, problem solveSCMSC PerfPrep GuideTicket outPaper airplanesCT - Creative thinking, critic thinking, problem solveLeanDER TextPrep GuideTicket outPaper airplanesCTM - Collab & teamwork GM - Adopting global mindset (model, embrace, reflect)JIT & LeanDER TextPrep GuideTicket outWorked explCapacityOER TextPrep GuideTicket outWorked explCapacityTheory of ConstraintsPrep GuideTicket outWorked explCapacityTheory of ConstraintsPrep GuideTicket outWorked explDenandDeres GuidesCT. C, CTM, CM)QuizBOM gameDemandPrep GuideTicket outWorked explDenandPrep GuideTicket outWorked explDenanceOER TextPrep GuideTicket outWorked explInvno ForoExturePrep GuideT	2 201811	Quality		Prep Guide	Ticket out	Red bead exp.		1
SPC/Control ChartsPrep GuideKahootQualityProcess CapabilityPartnering techniques - i.eSCMOER TextPrep GuideTicket outDesigning a SCEffic/Respon SCOER Links(CT, C, CTM, CM)Quiz(CT, C, AA)Push/PullLectureImage and the second and				(CT, C, CTM, CM)		(CT,C,CTM,AA,L)		
Quality MgmtPartnering techniques - i.e clock partnersPartnering techniques - i.e clock partnersMgmtSCMOER TextPrep GuideTicket outDesigning a SCZist Century Skills (SOP Majors): CT - Creative thinking, critic thinking, problem solveZist Century Skills (SOP 					HW			
MgmtProcess CapabilityClock partnersclock partnersSCMOER TextPrep GuideTicket outDesigning a SC21st Century Skills (SOP Majors): CT - Creative thinking, critic thinking, problem solve21st Century Skills (SOP Majors): CT - Creative thinking, critic thinking, problem solve21st Century Skills (SOP Majors): CT - Creative thinking, critic thinking, problem solve21st Century Skills (SOP Majors): CT - Creative thinking, critic thinking, problem solve C - CommunicationSCMSC PerfPrep GuideTicket outPaper airplanesCTM - Collab & Keamwork GM - Adopting global mindest (model, embrace, reflect)Lean Six SigmaOER TextPrep GuideTicket outWorked explAA - Agility & adaptability L - LeadershipJIT & LeanDestrationOER TextPrep GuideTicket outWorked explL - LeadershipLong-termOER TextPrep GuideTicket outWorked explL - LeadershipCapacityOER TextPrep GuideTicket outWorked explL - LeadershipCapacityOER TextPrep GuideTicket outWorked explL - LeadershipCapacityDecisions/CostsOER TextPrep GuideTicket outWorked explPlanningPrep GuideTicket outWorked explDistribution gamePanningOER TextPrep GuideTicket outWorked explPrep GuideCT, C, CTM, CM)QuizDistribution gameFOQ/EOQPrep GuideTicket outWorked expl <td>Quality</td> <td>SPC/COntrol Charts</td> <td>Frep Guide</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Quality	SPC/COntrol Charts	Frep Guide					
Effic/Respon SCOER Links(CT, C, CTM, CM)Quiz(CT, C, CA)21st Century Skills (SOP Majors): CT - Creative thinking, critic thinking, problem solve C - CommunicationSCMSC PerfPrep GuideTicket outPaper airplanesCT - Creative thinking, critic thinking, problem solve C - CommunicationSCMLeanOER TextPrep GuideTicket outPaper airplanesCTM - Collab & teamwork GM - Adopting global mindset (model, embrace, reflect)JIT & LeanOER Links(CT, C, CTM, CM)Quiz(CT, C, CTM, AA)Ar A sglity & adaptability L - LeadershipJIT & LeanPrep GuideTicket outWorked explAr A sglity & adaptability L - LeadershipJIT & LeanCER TextPrep GuideTicket outWorked explLong-termOER Links(CT, C, CTM, CM)QuizBOM game Icket outL - LeadershipCapacityDER TextPrep GuideTicket outWorked explCapacityDER Links(CT, C, CTM, CM)QuizBOM gameIntro ForecastingOER Links(CT, C, CTM, CM)QuizDistribution gamePlanningPrep GuideTicket outWorked explFOQ/EOQPrep GuideTicket outWorked explFOQ/EOQPrep GuideTicket outWorked explAggregate PlanningOER Links(CT, C, CTM, CM)QuizCT, AA)MgmtCapacity Rep PlanPrep GuideTicket outWorked explMgmtCapacity Rep PlanOER Links(CT, C, C		Process Capability						
Effic/Respon SCOER Links(CT, C, CTM, CM)Quiz(CT, C, CAA)Majors): CT - Creative thinking, critic thinking, problem solveSCMSC PerfPrep GuideCT - Creative thinking, critic thinking, problem solveC - CommunicationSCMLeanOER TextPrep GuideTicket outPaper airplanesCT - Creative thinking, critic thinking, problem solveLean Six Sigma JITDER LinksPrep GuideTicket outPaper airplanesCTM - Colla & teamwork GM - Adopting global mindset (model, embrace, reflect)JIT & Lean Long-termDER TextPrep GuideTicket outWorked explCapacityDER TextPrep GuideTicket outWorked explCapacityDER TextPrep GuideTicket outWorked explCapacityDER TextPrep GuideTicket outWorked explCapacityDER TextPrep GuideTicket outWorked explPanningDections/CostsOER Links(CT, C, CTM, CM)QuizDengmePlanningDections/CostsOER TextPrep GuideTicket outWorked explPlanningDections/CostsOER TextPrep GuideTicket outWorked explFOQ/EOQPrep GuideTicket outWorked explHWFOQ/EOQPrep GuideTicket outWorked explResource PlanningOER Tinks(CT, C, CTM, CM)Quiz(CT, AA)MgmtCapacity ReplanPrep GuideTicket outWorked explMgmt <td></td> <td>SCM</td> <td>OER Text</td> <td>Prep Guide</td> <td>Ticket out</td> <td>Designing a SC</td> <td></td> <td></td>		SCM	OER Text	Prep Guide	Ticket out	Designing a SC		
SCM SC Perf Prep Guide CT - Creative thinking, rithinking, rithinking, problem solve SCM SC Perf Prep Guide C - communication Lean OER Text Prep Guide Ticket out Paper airplanes CTM - Collab & teamwork JIT Lean Six Sigma OER Links (CT, C, CTM, CM) Quiz (CT, C, CTM, AA) TM - Collab & teamwork JIT Lecture Verp Guide Ticket out Worked expl AA - Agilty & adaptability JIT & Lean Prep Guide Ticket out Worked expl L - Leadership Gapacity OER Text Prep Guide Ticket out Worked expl Capacity OER Text Prep Guide Ticket out Worked expl Capacity OER Text Prep Guide Ticket out Worked expl Chear Carstains OER Text Prep Guide Ticket out Worked expl Demand Lecture HW (CT, C, CTM, AA, L) Prep Guide Ficket out Planning Prep Guide Ticket out Worked expl HW Ficket out Planning Dections/Costs OER Text Prep Guide Ticket out Worked expl FOQ/EOQ Prep Guide Ticket out Worked expl Ficke		Effic/Respon SC	OFR Links	(CT_C_CTM_CM)	Quiz			
SCM SC Perf Prep Guide C - Communication Lean OER Text Prep Guide Ticket out Paper airplanes CTM - Collab & teamwork Lean Six Sigma OER Links (CT, C, CTM, CM) Quiz (CT, C, CTM, AA) Time - Calpab & teamwork JIT & Lean Prep Guide CT, C, CTM, CM) Quiz (CT, C, CTM, AA) AA - Agility & adaptability JIT & Lean Prep Guide Ticket out Worked expl AA - Agility & adaptability Log-term OER Text Prep Guide Ticket out Worked expl Capacity OER Text Prep Guide Ticket out Worked expl Capacity OER Links (CT, C, CTM, CM) Quiz (CT, C, CTM, AA, L) Demand Lecture Prep Guide Ticket out Worked expl Demand Lecture HW (CT, C, CTM, AA, L) Planning Prep Guide Ticket out Worked expl Characteristics OER Text Prep Guide Ticket out Worked expl Planning Decisions/Costs OER Text Prep Guide Ticket out Worked expl Planning Resource Planning OER Text Prep Guide Ticket out Worked expl Planning De		Eme/Response	OLIV LINKS	(01, 0, 0111, 011)	Quiz	(01, 0, AA)		CT - Creative thinking, critical
LeanOER TextPrep GuideTicket outPaper airplanesCTM - Collab & teamwork GM - Adopting global mindset (model, embrace, reflect)JITLean Six SigmaOER Links(CT, C, CTM, CM)Quiz(CT, C, CTM, AA)AA - Agliity & adaptability L - LeadershipJIT & LeanPrep GuideTicket outWorked expl(CT, C, CTM, CM)Quiz(CT, AA)March 2002CapacityOER TextPrep GuideTicket outWorked expl(CT, C, CTM, CM)L - LeadershipCapacityOER Links(CT, C, CTM, CM)Quiz(CT, AA)(CT, C, CTM, AA)L - LeadershipCapacityTheory of ConstraintsPrep GuideTicket outWorked explL - LeadershipCapacityOER TextPrep GuideTicket outWorked explL - LeadershipDemandLectureHW(CT, C, CTM, CM)QuizDistribution gamePlanningPrep GuideTicket outWorked explPlanningOER TextPrep GuideTicket outWorked explPlanningDer GuideTicket outWorked explPlanningDer GuideTicket outWorked explResourcePrep GuideTicket outWorked explResourcePrep GuideTicket outWorked explMgmtCapacity Rep PlanPrep GuideTicket outWorked explMgmtCapacity Rep PlanPrep GuideTicket outWorked explSequencingOER TextPrep GuideTicket outWorked expl </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Lean Six Sigma OER Links (CT, C, CTM, CM) Quiz (CT, C, CTM, AA) mindset (model, embrace, reflect) JIT Lecture Prep Guide (CT, C, CTM, CM) Quiz (CT, C, CTM, AA) JIT & Lean Prep Guide Ticket out Worked expl (Lecture) A - Agility & adaptability JIT & Lean Capacity OER Text Prep Guide Ticket out Worked expl Lecture) Capacity OER Text Prep Guide Ticket out Worked expl Lecture) Lecture) Capacity Theory of Constraints Prep Guide Ticket out Worked expl Ecture) Fost Models OER Links (CT, C, CTM, CM) Quiz BOM game Demand Lecture Prep Guide Ticket out Worked expl Planning Decisions/Costs OER Text Prep Guide Distribution game FOQ/EOQ Prep Guide Ticket out Worked expl FOQ/EOQ Prep Guide Ticket out Worked expl Aggregate Planning OER Text Prep Guide Ticket out Worked expl Resource Planning OER Text Prep Guide Ticket out Worked expl Mgmt Capacity Rep Plan Prep Guide Ticket ou	SCM			Bron Cuide	Ticket out	Denerairelanes		
International problem DER Links (CT, C, CTM, CM) Quiz (CT, C, CTM, AA) AA - Agilty & adaptability JT & Lean Prep Guide Ticket out Worked expl L- Leadership Intro Greacating DER Text Prep Guide Ticket out Worked expl L- Leadership Capacity DER Text Prep Guide Ticket out Worked expl L- Leadership Capacity DER Text Prep Guide Ticket out Worked expl L- Leadership Capacity Theory of Constraints Prep Guide Ticket out Worked expl L- Leadership Demand Fest Models OER Links (CT, C, CTM, CM) Quiz BOM game Demand Lecture HW (CT, C, CTM, AA, L) Planning OER Text Prep Guide Ticket out Worked expl Characteristics OER Text Prep Guide Ticket out Worked expl FOO Ecture HW (CT, C, CTM, AA, L) HW FOO/EOQ Prep Guide Ticket out Worked expl Agregate Planning OER Ticks (CT, C, CTM, CM) Quiz Distribution game Agregate Planning OER Ticks (CT, C, CTM, CM) Quiz CT, AA Mgm		Lean	UER Text	Prep Guide	ficket out	Paper airplanes		
JIT Lecture A. A agility & adaptability JIT & Lea Prep Guide Lecture Lecture Long-term DER Text Prep Guide Ticket out Worked expl Capacity Theory of Constraints Prep Guide (CT, C, CTM, CM) Quiz (CT, AA) Capacity Theory of Constraints Prep Guide Ticket out Worked expl Capacity Theory of Constraints Prep Guide Ticket out Worked expl Capacity Theory of Constraints Prep Guide Ticket out BOM game Demand Ceture Prep Guide Ticket out Worked expl Planning Prep Guide Ticket out Worked expl Planning Decisions/Costs DER Text Prep Guide Ticket out FOQ/EOQ Prep Guide Ticket out Worked expl FOQ/EOQ Prep Guide Ticket out Worked expl Aggregate Planning DER Text Prep Guide Ticket out Mgmt Capacity Rep Plan CCT, C, CTM, CM) Quiz CT, AA) Mgmt Capacity Rep Plan Prep Guide Ticket out Worked expl Mgmt Capacity Rep Plan Prep Guide Ticket out Worked expl								
$ JIT & Lean & Prep Guide & Ticket out Worked expl \\ Long-term & OER Text Prep Guide & Ticket out Worked expl \\ Long-term & OER Text Prep Guide & Ticket out Worked expl \\ Short-term & Lecture & HW \\ \hline Capacity Theory of Constraints Prep Guide & Ticket out Worked expl \\ Fcst Models & OER Text Prep Guide & Ticket out Worked expl \\ Fcst Models & OER Text Prep Guide & Ticket out Worked expl \\ Penaning & Prep Guide & Ticket out Worked expl \\ Characteristics OER Text Prep Guide & Ticket out Worked expl \\ Characteristics OER Text Prep Guide & Ticket out Worked expl \\ Characteristics OER Text Prep Guide & Ticket out Worked expl \\ Characteristics OER Text Prep Guide & Ticket out Worked expl \\ Characteristics OER Text Prep Guide & Ticket out Worked expl \\ FOQ/EOQ Prep Guide & HW (CT, C, CTM, AA, L) \\ FOO & HW (CT, C, CTM, AA, L) \\ FPO & HW (CT, C, CTM, AA, L) \\ FOQ & HER Text Prep Guide Ticket out Worked expl \\ Characteristics OER Text Prep Guide Ticket out Worked expl \\ Resource Planning OER Text Prep Guide Ticket out Worked expl \\ Resource Planning OER Text Prep Guide Ticket out Worked expl \\ Mgmt Capacity Req Plan Prep Guide \\ Scheduling OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequencing OER Text Prep Guide Ticket out Worked expl \\ Sequ$				(CT, C, CTM, CM)	Quiz	(CT, C, CTM, AA)		
CapacityCBR TextPrep GuideTicket outWorked explLong-termCCT, C, CTM, CMQuiz(CT, CA)Short-termLectureHW	IIT & Loop	TIL						
Long-term Short-termOER Links Lecture(CT, C, CTM, CM) QuizQuiz Quiz(CT, AA)CapacityTheory of ConstraintsPrep GuideHWHWIntro Forecasting Pers GuideOER TextPrep GuideBOM gameDemandLectureHW(CT, C, CTM, AA, L)PlanningPrep GuideHW(CT, C, CTM, AA, L)PlanningPrep GuideTicket outWorked explCapacityDER TextPrep GuideTicket outWorked explPlanningDecisions/CostsOER TextPrep GuideUctr, C, CTM, AA, L)PlanningDecisions/CostsOER TextPrep GuideTicket outWorked explFOQ/EOQPrep GuideUctr, C, CTM, CM)QuizDistribution gameABCLectureHW(CT, C, CTM, AA, L)FPOFPOFPOFPOFPOInventoryFPOFPEFPE GuideTicket outWorked explResource PlanningOER TextPrep GuideTicket outWorked explMgmtCapacity Rep PlanPrep GuideFPEHWFPEMgmtSchedulingOER TextPreg GuideTicket outWorked explSequencingOER TextPreg GuideTicket outWorked explOpsMonitor and ControlLectureHWFPE	JII & Lean	Capacity		Prep Guide	Ticket out	Worked expl		L'Leadership
Capacity Theory of Constraints Prep Guide Intro Forecasting OER Text Prep Guide Ticket out Worked expl Fest Models OER Links (CT, C, CTM, CM) Quiz BOM game Demand Prep Guide Ticket out Worked expl Planning Prep Guide Ticket out Worked expl Characteristics OER Text Prep Guide Ticket out Worked expl FOQ/EOQ Prep Guide Ticket out Worked expl Morked expl Resource Planning OER Text Prep Guide Ticket out Worked expl Resource Planning OER Text Prep Guide Ticket out Worked expl Mgmt Capacity Rep Plan Dere Guide Ticket out Worked expl Mgmt Capacity Rep Plan Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Resource Planning DER Text Prep Guide Ticket out Worked expl Resource Planning		Long-term	OER Links					
Intro Forecasting Fcst Models OER Text Lecture Prep Guide (CT, C, CTM, CM) Ticket out Quiz Worked expl Demand Prep Guide Ticket out Prep Guide GT, C, CTM, AA, L) Planning Prep Guide Ticket out Characteristics OER Text Prep Guide Worked expl Decisions/Costs OER Text Characteristics OER Links (CT, C, CTM, CM) Quiz Distribution game Distribution game ABC Lecture HW (CT, C, CTM, AA, L) FPO FPO FPO Resource Planning OER Text Prep Guide Aggregate Planning OER Ticket Out Aggregate Planning OER Text Mgmt Capacity Rep Plan Prep Guide Scheduling OER Text Prep Guide Sequencing OER Text Prep Guide					нw			
Fcst Models OER Links (CT, C, CTM, CM) Quiz BOM game Demand Lecture HW (CT, C, CTM, AA, L) Planning Prep Guide Ticket out Worked expl Characteristics OER Text Prep Guide Distribution game ABC Lecture HW (CT, C, CTM, AA, L) FOQ/EOQ Prep Guide Distribution game Resource Planning OER Text Prep Guide Resource Planning OER Text Prep Guide Mgmt Cagacity Reg Plan (CT, C, CTM, CM) Quiz Gagregate Planning OER Text Prep Guide (CT, C, TA, CM) Mgmt Cagacity Reg Plan Prep Guide Ticket out Worked expl Scheduling OER Links (CT, C, CTM, CM) Quiz (CT, AA) Ops Monitor and Control Lecture HW HW	Capacity			Prop Guida	Ticket out	Worked expl		-
Demand Planning Lecture Prep Guide HW (CT, C, TM, AA, L) Planning Prep Guide Ticket out Worked expl Characteristics OER Text Prep Guide Ticket out Worked expl Characteristics OER Links (CT, C, CTM, CM) Quiz Distribution game ABC Lecture HW (CT, C, CTM, AA, L) FOQ/EOQ Prep Guide Ticket out Worked expl Resource Planning OER Text Prep Guide Ticket out Mgmt Capacity Replan Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Mgmt Capacity Replan Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Ops Monitor and Control Lecture HW HW								
Decisions/Costs OER Text Prep Guide Ticket out Worked expl Characteristics OER Links (CT, C, CTM, CM) Quiz Distribution game ABC Lecture HW (CT, C, CTM, AA,L) FOQ/EOQ Prep Guide (CT, C, CTM, AA,L) Resource Planning OER Text Prep Guide Ticket out Worked expl Aggregate Planning OER Links (CT, C, CTM, CM) Quiz (CT, AA) Mgmt Capacity Reg Plan Prep Guide Ticket out Worked expl Scheduling OER Text Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Sequencing			Lecture					
Characteristics OER Links (CT, C, CTM, CM) Quiz Distribution game ABC Lecture HW (CT, C, CTM, AA, L) FOQ/EOQ Prep Guide ICT, C, CTM, CM) (CT, C, CTM, AA, L) FPO FPO FPO Inverted expl Aggregate Planning OER Links (CT, C, CTM, CM) Quiz (CT, AA) Resource Disaggregation Lecture HW Inverse explanation Mgmt Capacity Reg Plan Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Sequencing OER Text Prep Guide Ticket out Worked expl Ops Monitor and Control Lecture HW Integer	Planning	D		D	and the second	Manufa at a second		4
ABC Lecture HW (CT, C, CTM, AA, L) FOQ/EOQ Prep Guide HW (CT, C, CTM, AA, L) Inventory FPO Prep Guide Ticket out Worked expl Resource Planning Aggregate Planning Mgmt OER Text Capacity Req Plan Prep Guide Ticket out Worked expl Capacity Req Plan Prep Guide HW HW Scheduling Sequencing OER Links (CT, C, CTM, CM) Quiz (CT, AA) Ops Monitor and Control Lecture HW HW								
FOQ/EOQ Prep Guide FPO FPO Resource Planning OER Text Prep Guide Ticket out Worked expl Aggregate Planning OER Links (CT, C, CTM, CM) Quiz (CT, AA) Mgmt Capacity Req Plan Prep Guide HW FOO Scheduling OER Links (CT, C, CTM, CM) Quiz (CT, AA) Ops Monitor and Control Lecture HW FOO				(21, 6, 6114), 6141)				
Resource Planning Aggregate Planning OER Links OER Text (CT, C, CTM, CM) Prep Guide Quiz Ticket out (CT, AA) Mgmt Capacity Req Plan Scheduling Prep Guide HW Scheduling OER Links (CT, C, CTM, CM) Quiz Ops Monitor and Control Lecture HW			Prep Guide					
Aggregate Planning OER Links (CT, C, CTM, CM) Quiz (CT, AA) Resource Disagregation Lecture HW Mgmt Capacity Req Plan Prep Guide Vorked expl Scheduling OER Text Prep Guide Vorked expl Sequencing OER Links (CT, C, CTM, CM) Quiz Ops Monitor and Control Lecture HW	Inventory			Dron Guid-	Tiekett	Worked cord		4
Resource Disaggregation Lecture HW Mgmt Capacity Req Plan Prep Guide HW Scheduling OER Text Prep Guide Ticket out Worked expl Sequencing OER Links (CT, C, CTM, CM) Quiz (CT, AA) Ops Monitor and Control Lecture HW								
Mgmt Capacity Req Plan Prep Guide Scheduling OER Text Prep Guide Ticket out Worked expl Sequencing OER Links (CT, C, CTM, CM) Quiz (CT, AA) Ops Monitor and Control Lecture HW	Resource			(01, 0, 01, 01, 01, 01, 01, 01, 01, 01, 0				
Sequencing OER Links (CT, C, CTM, CM) Quiz (CT, AA) Ops Monitor and Control Lecture HW		Capacity Req Plan	Prep Guide]
Ops Monitor and Control Lecture HW				· · · · · · · · · · · · · · · · · · ·				
	Ons			(CT, C, CTM, CM)		(CT, AA)		
Frep Guide	Scheduling	onicor una control	Prep Guide					

Appendix A: Sample Course Implementation Plan (Operations Management)