MOHAMMED SATHAK A J COLLEGE OF ENGINEERING

| o improve the skill to understanding the continuous achieve sustainable of understanding of various and apply the various mellustrate the tools for Determine the continuous achieves and the continuous achieves and the continuous achieves and the continuous achieves and the continuous achieves achieves and the continuous achieves achieves and the continuous achieves achi | | | Chennai - 6 | 03103 | | | | |
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| Subject Subject Code Acad Year Degain insight about Degain insight abou | DEPARTMENT OF MECHANIC | LESSON P | | on To CSE,ECE, MI | ECH & IT) | | | |
| Subject Code Acad Year Description of the same of the | the lean six sigma | | N | Name of the | | /Mr.K.K.V | 'INOTHKUMAR | |
| Acad Year Degain insight about to improve the skill to understanding the particular action of t | ject | handling Faculty | | | Dr.S.PRASATH /Mr.K.K.VINOTHKUMAF | | | |
| gain insight about to improve the skill to understanding the possible properties of achieve sustainable of understand the basic sterpret the tools and perfect the tools for etermine the continuous ments the tools for etermine the continuous strate the tools for etermine the continuous strategy and the strategy strategy are strategy and the strategy strategy and the strategy strategy and the strategy strategy are strategy and the strategy strategy are strategy and the strategy strategy are strategy and the strategy are strategy at the strategy are strategy at the strategy and the strategy are strategy at the strategy at | | | | Year / Sem Batch | | IV/VIII 2019-2023 | | |
| o improve the skill to understanding the packieve sustainable of understanding of various and polythe various metastrate the tools and polythe various metastrate the tools for etermine the continuous states and tolerance. 1 Historical C What is six 3 lean manufatolerance. 4 Six sigma at tolerance. 4 Six sigma at Six sigma and Six sigma and Cost of Pool Cost of Doi aggested Activity: valuation method: 10 Tools for datagram. 11 CTQ Tree, 12 Check shee Cause and control of the contro | | Course Obj | ective | | | | | |
| o understanding the packing of a chieve sustainable of understanding the tools for etermine the continuous sustainable of the continuous sustainable o | about the importance of lean manufacturing and six sigma | - | | | | | | |
| o achieve sustainable of understand the basics atterpret the tools and pply the various melustrate the tools for etermine the continuous states and the continuous states are the tools for etermine the continuous states are the tools | skill to predict, prevent and control defects in a process. | | | | | | | |
| nderstand the basics terpret the tools and pply the various me lustrate the tools for etermine the continuous standard to the con | g the elements of waste. inable quality improvement through process improvemer | nt | | | | | | |
| 1 Historical C 2 What is six 3 lean manufatolerance 4 Six sigma a 5 six sigma a 6 six sigma a 7 Implication 8 Cost of Pool 9 Cost of Doi 10 Tools for daily agram 11 CTQ Tree, 12 Check shee Cause and d 13 Process Cap | g of variation in processes. | 11. | | | | | | |
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| pply the various melustrate the tools for etermine the contine state of the termine state of the | pasics of lean six sigma | •. | | | | | | |
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| 3 lean manufatolerance 4 Six sigma a 5 six sigma a 6 six sigma a 7 Implication 8 Cost of Pool 9 Cost of Doi uggested Activity: valuation method: 10 Tools for dadiagram 11 CTQ Tree, 12 Check shee Cause and a 13 Process Cap | ical Overview , Definition of quality | R4 | 1 | BB | L1,L2 | CO1 | PO6-PO8 | |
| tolerance 4 Six sigma a 5 six sigma c 6 six sigma n 7 Implication 8 Cost of Pool 9 Cost of Doi 6 Suggested Activity: Evaluation method: 10 Tools for d diagram 11 CTQ Tree, 12 Check shee Cause and c 13 Process Cal | is six sigma ,TQM and Six sigma | R4 | 1 | BB | L1,L2 | CO1 | PO6-PO8 | |
| 5 six sigma compared to six sigma not sigma not six six six sigma not six | nanufacturing and six sigma, six sigma and process | R4 | 1 | BB | L2 | CO1 | PO6-PO8 | |
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| 7 Implication 8 Cost of Pool 9 Cost of Doi Guggested Activity: Evaluation method: 10 Tools for de diagram 11 CTQ Tree, 12 Check shee Cause and de 13 Process Cap | ma capability | R4 | 1 | PPT | L2 | CO1 | PO6-PO8 | |
| 8 Cost of Pool 9 Cost of Doi Suggested Activity: Evaluation method: 10 Tools for de diagram 11 CTQ Tree, 12 Check shee Cause and de 13 Process Cap | ma need assessments | R4 | 1 | PPT | L2 | CO1 | PO6-PO8 | |
| 9 Cost of Doi Suggested Activity: Evaluation method: 10 Tools for dediagram 11 CTQ Tree, 12 Check shee Cause and dediagram 13 Process Cap | ations of quality levels | R4 | 1 | PPT | L2 | CO1 | PO6-PO8 | |
| 10 Tools for data diagram 11 CTQ Tree, 12 Check shee Cause and cause and cause are cau | f Poor Quality (COPQ) | R4 | 1 | BB | L2 | CO1 | PO6-PO8 | |
| 10 Tools for de diagram 11 CTQ Tree, 12 Check shee Cause and diagram 13 Process Cap | f Doing Nothing ,assessment questions | R4 | 1 | BB | L2 | CO1 | PO6-PO8 | |
| 10 Tools for de diagram 11 CTQ Tree, 12 Check shee Cause and de la Process Cap | vity: Assignment / Case Studies / Tuorials/ Quiz / Mi | | lodel Deve | loped/others Plan | ned if anySe | minar and | l Assignment | |
| diagram 11 CTQ Tree, Check shee Cause and Cau | hod : Assignment and Direct interaction during Tuto UNIT II (THE SC | | T AND T | TECHNIOLIES) | | | | |
| diagram 11 CTQ Tree, Check shee Cause and Cau | OMI II (IIIE SC | OIL OF TOO | LSAND | Ech (QCES) | | | | |
| 12 Check shee Cause and control Process Cap | for definition , IPO diagram, SIPOC diagram, Flow m | R6 | 1 | ВВ | L2,L3 | CO3 | PO6-PO8 | |
| Cause and 6 13 Process Cap | Free, Project Charter, Tools for measurement | R6 | 1 | BB | L2 | CO3 | PO6-PO8 | |
| | sheets, Histograms, Run Charts, Scatter Diagrams, and effect diagram, Pareto charts, Control charts, Flow | R6 | 1 | BB | L1,L2 | CO3 | PO6-PO8 | |
| Process Ma | ss Capability Measurement, Tools for analysis | R6 | 1 | BB | L2 | CO3 | PO6-PO8 | |
| SWOT | | R6 | 1 | ВВ | L1,L2,L3 | CO3 | PO6-PO8 | |
| | LE, Five Whys, interrelationship diagram, overall nent effectiveness, TRIZ innovative problem solving | R6 | 1 | BB | L2 | CO3 | PO6-PO8 | |
| 16 Tools for in | for improvement ,Affinity diagram, Normal group | R6 | 1 | PPT | L2 | CO3 | PO6-PO8 | |
| 17 network dia | | R6 | 1 | PPT | L1,L2 | CO3 | PO6-PO8 | |
| 18 | chart,PDCA cycle,Milestone tracker bdiagram,earned management | R6 | 1 | BB | L2,L3 | CO3 | PO6-PO8 | |

| Design For Six Signan Method | | UNIT III (S | IX SIGMA M | ETHODO | LOGIES) | | | |
|--|------------|---|-------------------|---------------|-------------------|---------------------------------------|--------------|--------------------|
| Design For Six Signan Method | 19 | Design for six sigma (DfSS) | R3 | 1 | BB | L2 | CO4 | PO6-PO8 |
| 21 Failuse Musla Fiffect Analysis (FMFA) | 20 | Design For Six Sigma Method | R3 | 1 | BB | L1,L2 | CO4 | |
| PPT L1.L2 CO3 | 21 | Failure Mode Effect Analysis (FMEA) | R3 | 1 | PPT | L1,L2,L3 | | |
| 23 | | FMEA process | R3 | 1 | PPT | | | |
| 24 Six Sigma and Leadership | | Risk Priority Number (RPN) | R3 | 1 | | | | |
| 25 Committed lendership R3 | | | | | | , | | |
| 26 Change Acceleration Process (CAP) | | | | | | | | |
| 27 Developing communication plan , Stakeholder R3 1 PPT 1.2 CO4 POG-FOR | | 1 | | | | | CO4 | PO6-PO8 |
| Suggested Activity: Assignment / Case Studies / Tourists/ Quiz / Mini Projects / Model Developed/uburer Flamed If anySeminar and Assignment Evaluation method: Assignment / Case Studies / Tourists/ Quiz / Mini Projects / Model Developed/uburer Flamed If anySeminar and Assignment Evaluation method: Assignment / Case Studies / Tourists/ Quiz / Mini Projects / Model Developed/uburer Planned If anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials PPT | 26 | Change Acceleration Process (CAP) | R3 | 1 | PPT | L2,L3 | CO4 | PO6-PO8 |
| Valuation method: Assignment and Direct interaction during Tutorials | | | | | | | CO4 | PO6-PO8 |
| No. Continue Con | | | odel Developed/or | thers Planned | d if anySeminar | and Assignment | | |
| Tools for implementation, Supplier Input Process Output | Evaluation | n method: Assignment and Direct interaction during Tutorials | | | | | | |
| Customer (SIPOC) | | | IMPLEMENT | ATION A | ND CHALLENG | GES) | | T |
| Alternative approach , implementation , leadership training | 28 | | R3 | 1 | PPT | L2,L3 | CO4 | PO6-PO8 |
| Alternative approach , implementation , leadership training | 29 | Quality Function Deployment or House of Quality (QFD) | R3 | 1 | PPT | L1,L2 | CO4 | PO6-PO9 |
| 31 Close communication system, R3 1 PPT 1.2 CO4 PO6,PO8,PC 32 project selection, project management and team R3 1 PPT 1.1.1.2 CO4 PO6,PO8,PC 33 Champion training, customer quality index, challenges R3 1 BB 1.2.1.3 CO4 PO6,PO8,PC 34 program failure, CPQ vs six sigma R3 1 BB 1.1.1.2 CO4 PO6,PO8,PC 35 structure the deployment of six sigma R3 1 BB 1.1.1.2 CO4 PO6,PO8,PC 36 cultural challenge, customer/internal metrics R3 1 BB 1.2 CO4 PO6,PO8,PC 36 cultural challenge, customer/internal metrics R3 1 BB 1.2 CO4 PO6,PO8 37 Evaluation strategy customer/internal metrics R3 1 BB 1.2 CO4 PO6,PO8 38 Suggested Activity: Assignment / Case Studies / Tuorials/ Ouiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials UNIT V (EVALUATION AND CONTINOUSIMPROVEMENT METHODS) 37 Evaluation strategy, the economics of six sigma quality R3 1 BB 1.1.2 CO5 PO8,PO10 38 Return on six Sigma (ROSS) R3 1 BB 1.1.1.2 CO5 PO8,PO10 40 lean manufacturing, value, customer focus R3 1 BB 1.1.1.2 CO5 PO6,PO8 40 lean manufacturing, value, customer focus R3 1 BB 1.1.1.2 CO5 PO6,PO8,PO10 41 Perfection, focus on waste, overproduction, waiting R3 1 BB 1.1.1.2 CO5 PO6,PO8,PO10 42 Inventory in process (IIP), processing waste R3 1 BB 1.1.1.2 CO5 PO6,PO8,PO10 43 Transportation, motion R3 1 PPT 1.2 CO5 PO6,PO8,PO10 44 Making defective products, underutilizing people R3 1 PPT 1.2 CO5 PO6,PO8,PO12 45 Kaizen – SS Suggested Activity: Assignment / Case Studies / Tuorials/ Ouiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment 1 MPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW STATISTICAL PROCESS CONTROL Reference Books 1 Michael L. George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 2 Thomas Pyzdek, The Six Sigma Handook, McGraw-Hill.2000 3 Ferd Soleimannejed, Six Sigma, Basic Steps and Implementation, Authorifouse, 2004 Fornest W. Berefold, Deck Meadows, Managing Six Sigma, Technica | 30 | Alternative approach , implementation , leadership training | R3 | 1 | PPT | L1,L2,L3 | | |
| 32 | 31 | Close communication system, | R3 | 1 | PPT | L2 | | |
| 1 | 32 | | R3 | 1 | PPT | | | |
| Program failure, CPQ vs six sigma | | | | | | | | |
| 35 structure the deployment of six sigma 36 cultural challenge , customer/internal metrics 37 cultural challenge , customer/internal metrics 38 R3 1 BB L2 CO4 P06-P08 Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials UNIT V (EVALUATION AND CONTINOUSIMPROVEMENT METHODS) 37 Evaluation strategy, the economics of six sigma quality R3 1 BB L1.2 CO5 P09.P010 38 Return on six Sigma (ROSS) 39 ROI, poor project estimates, continuous improvement R3 1 BB L1.1.2 CO5 P06.P08 40 lean manufacturing , value, customer focus R3 1 BB L1.1.2 CO5 P06.P08.P010 41 Perfection, focus on waste, overproduction , waiting R3 1 BB L1.1.2 CO5 P06.P08.P010 42 Inventory in process (IIP), processing waste R3 1 BB L1.1.2 CO5 P06.P08.P010 43 Transportation, motion R3 1 PPT L2 CO5 P06.P08.P012 44 Making defective products, underutilizing people R3 1 PPT L2 CO5 P06.P08.P012 45 Kaizen – SS R3 1 BB L1.1.2 CO5 P06.P08.P012 46 Kaizen – SS R0 | | | | | | | | |
| a cultural challenge, customer/internal metrics R3 1 BB L2 CO4 POG-PO8 Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials UNIT V (EVALUATION AND CONTINOUSIMPROVEMENT METHODS) 37 Evaluation strategy, the economics of six sigma quality R3 1 BB L1, L2, L3 CO5 PO9,PO10 38 Return on six Sigma (ROSS) R3 1 BB L1, L2, L3 CO5 PO6,PO8 40 lean manufacturing, value, customer focus R3 1 BB L1, L2, L3 CO5 PO6,PO8 40 lean manufacturing value, customer focus R3 1 BB L1, L2 CO5 PO6,PO8,PO10 41 Perfection, focus on waste, overproduction, waiting R3 1 BB L1, L2 CO5 PO6,PO8,PO10 42 Inventory in process (IIP), processing waste R3 1 BB L1, L2 CO5 PO6,PO8,PO10 43 Transportation, motion R3 1 PPT L2 CO5 PO6,PO8,PO12 44 Making defective products, underutilizing people R3 1 PPT L2 CO5 PO6,PO8,PO12 45 Kaizen - 5S R3 1 BB L1, L2, L3 CO5 PO6,PO8,PO12 46 Kaizen - 5S R3 1 BB L1, L2, L3 CO5 PO6,PO8,PO12 5 Suggested Activity: Assignment / Case Studies / Tuorials / Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned 1 IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL Reference Books 1 Michael L. George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw - Hill 2003 3 Fred Soleimannjed, Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 4 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T. Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references | | | | | | | CO4 | PO6,PO8,PO12 |
| Suggested Activity: Assignment / Case Studies / Tuorials / Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment | | | | | | | CO4 | PO6-PO8 |
| Evaluation method : Assignment and Direct interaction during Tutorials | | | | | | | | PO6-PO8 |
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| 87 Evaluation strategy, the economics of six sigma quality R3 1 BB L2 C05 P09,P010 38 Return on six Sigma (ROSS) R3 1 BB L1,L2,L3 C05 P08 39 ROI, poor project estimates, continuous improvement R3 1 BB L1,L2,L3 C05 P06,P08 40 lean manufacturing, value, customer focus R3 1 BB L2,L3 C05 P06,P08 41 Perfection, focus on waste, overproduction, waiting R3 1 BB L1,L2 C05 P06,P08 42 Inventory in process (IIP), processing waste R3 1 BB L1,L2 C05 P06,P08 43 Transportation, motion R3 1 PPT L2 C05 P06,P08,P012 44 Making defective products, underutilizing people R3 1 PPT L2 C05 P06,P08,P012 45 Kaizen - 5S R3 1 BB L1,L2,L3 C05 P06,P08,P012 46 Kaizen - 5S R3 1 BB L1,L2,L3 C05 P06,P08,P012 50 Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned 1 IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL 8 Reference Books 1 Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw - Hill 2003 3 Fred Soleimannejed, Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 4 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T.Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL reference https://www.sixsigmaonline.org/ | Lvalaati | | | OUSIMPRO | OVEMENT ME | THODS) | | |
| Return on six Sigma (ROSS) R3 1 BB L1,L2,L3 CO5 PO6,PO8 R3 1 BB L1,L2,L3 CO5 PO6,PO8 R3 1 BB L1,L2,L3 CO5 PO6,PO8 R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO10 R3 1 BB L1,L2 CO5 PO6,PO8,PO10 R3 1 PPT L2 CO5 PO6,PO8,PO10 R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO10 R3 1 PPT L2 CO5 PO6,PO8,PO10 R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO10 R3 1 BB L1,L2 R5 PO6,PO8,PO10 R5 P | 37 | <u> </u> | ı | 1 | 1 | , , , , , , , , , , , , , , , , , , , | COF | DO0 DO10 |
| R3 1 BB L1,L2 CO5 PO6,PO8 40 lean manufacturing, value, customer focus R3 1 BB L1,L2 CO5 PO6,PO8,PO10 41 Perfection, focus on waste, overproduction, waiting R3 1 BB L1,L2 CO5 PO6,PO8,PO10 42 Inventory in process (IIP), processing waste R3 1 BB L1,L2 CO5 PO6,PO8,PO10 43 Transportation, motion R3 1 PPT L2 CO5 PO6,PO8,PO12 44 Making defective products, underutilizing people R3 1 PPT L2 CO5 PO6,PO8,PO12 45 Kaizen – 5S R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 45 Kaizen – 5S R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 5 Waggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned 1 IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL Reference Books 1 Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 2 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill, 2000 3 Ferd Solcimannejed , Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T.Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references https://www.sixsigmaonline.org/ | | | | | | | | Ź |
| 40 lean manufacturing ,value, customer focus R3 1 BB L2,L3 CO5 PO6,PO8,PO10 41 Perfection, focus on waste, overproduction , waiting R3 1 BB L1,L2 CO5 PO6,PO8,PO10 42 Inventory in process (IIP), processing waste R3 1 BB L1,L2 CO5 PO6,PO8 42 Inventory in process (IIP), processing waste R3 1 PPT L2 CO5 PO6,PO8,PO12 43 Transportation, motion R3 1 PPT L2 CO5 PO6,PO8,PO12 44 Making defective products, underutilizing people R3 1 PPT L2 CO5 PO6,PO8,PO12 45 Kaizen – 5S R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 5 Vagested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned I MPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL Reference Books 1 Michael L.George, David Rownalds, Bill Kastle, What is Lean SiX Sigma, McGraw – Hill 2003 2 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill,2000 3 Fred Soleimannejed , Six Sigma, Basic Steps and Implementation, Author-House, 2004 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T. Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references 1 https://www.sixsigmaonline.org/ | | - ' ' | | | | | | |
| 41 Perfection, focus on waste, overproduction, waiting R3 1 BB L1,L2 CO5 PO6,PO8 42 Inventory in process (IIP), processing waste R3 1 BB L1,L2 CO5 PO6,PO8 43 Transportation, motion R3 1 PPT L2 CO5 PO6,PO8,PO12 44 Making defective products, underutilizing people R3 1 PPT L2 CO5 PO6,PO8,PO12 45 Kaizen - 5S R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 45 Kaizen - 5S R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned 1 IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL Reference Books 1 Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw - Hill 2003 2 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill,2000 3 Fred Soleimannejed , Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T. Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references 1 https://www.sixsigmaonline.org/ | | | | | | | CO5 | PO6,PO8 |
| 42 Inventory in process (IIP), processing waste R3 1 BB L1,L2 CO5 PO9,PO10,PO12 43 Transportation, motion R3 1 PPT L2 CO5 PO6,PO8,PO12 44 Making defective products, underutilizing people R3 1 PPT L2 CO5 PO6,PO8,PO12 45 Kaizen – 5S R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 5 Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned I MPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL Reference Books I Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 2 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill, 2000 3 Fred Soleimannejed, Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 4 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T. Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references 1 https://www.sixsigmaonline.org/ | | | | | | · | CO5 | PO6,PO8,PO10 |
| 43 Transportation, motion R3 1 PPT L2 CO5 PO6,PO8,PO12 44 Making defective products, underutilizing people R3 1 PPT L2 CO5 PO6,PO8,PO12 45 Kaizen – 5S R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned 1 IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 ISTATISTICAL PROCESS CONTROL Reference Books 1 Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 2 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill,2000 3 Fred Soleimannejed, Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 4 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T. Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references | 41 | , , , , , , , | | | | L1,L2 | CO5 | PO6,PO8 |
| 44 Making defective products, underutilizing people R3 1 PPT L2 CO5 PO6,PO8,PO12 45 Kaizen – 5S R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned 1 IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL Reference Books 1 Michael L. George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 2 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill,2000 3 Fred Soleimannejed , Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T. Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references https://www.sixsigmaonline.org/ | 42 | Inventory in process (IIP), processing waste | R3 | 1 | BB | L1,L2 | CO5 | PO9,PO10,PO12 |
| 45 Kaizen – 58 R3 1 BB L1,L2,L3 CO5 PO6,PO8,PO12 Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned 1 IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL Reference Books 1 Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 2 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill,2000 3 Fred Soleimannejed , Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T.Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references https://www.sixsigmaonline.org/ | 43 | Transportation, motion | R3 | 1 | PPT | L2 | CO5 | PO6,PO8,PO12 |
| Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if anySeminar and Assignment Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 | 44 | Making defective products, underutilizing people | R3 | 1 | PPT | L2 | CO5 | PO6,PO8,PO12 |
| Evaluation method: Assignment and Direct interaction during Tutorials Content Beyond the Syllabus Planned IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW STATISTICAL PROCESS CONTROL Reference Books Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill, 2000 Fred Soleimannejed, Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 James P. Womack, Daniel T.Jones, Lean Thinking, Free Press Business, 2003 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references https://www.sixsigmaonline.org/ | 45 | Kaizen – 5S | R3 | 1 | BB | L1,L2,L3 | CO5 | PO6,PO8,PO12 |
| Content Beyond the Syllabus Planned IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW STATISTICAL PROCESS CONTROL Reference Books Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill,2000 Fred Soleimannejed , Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 James P. Womack, Daniel T.Jones, Lean Thinking, Free Press Business, 2003 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references https://www.sixsigmaonline.org/ | Suggeste | ed Activity: Assignment / Case Studies / Tuorials/ Quiz / Mi | ni Projects / M | odel Deve | loped/others Plan | ned if anyS | eminar an | d Assignment |
| 1 IMPLEMENTATION OF LEAN SIX SIGMA IN VARIOUS INDUSTRIES - AN OVERVIEW 2 STATISTICAL PROCESS CONTROL Reference Books 1 Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, McGraw – Hill 2003 2 Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill, 2000 3 Fred Soleimannejed, Six Sigma, Basic Steps and Implementation, AuthorHouse, 2004 4 Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 5 James P. Womack, Daniel T.Jones, Lean Thinking, Free Press Business, 2003 6 P. R. Hemalatha, Murali Saktheeswaran, T. Suba Nachiar, Lean Six Sigma, Technical Publications, 2020 Website/URL references https://www.sixsigmaonline.org/ | | 0 | rials | | | | | |
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| Strategy That Yields Bottom-Line Success, John Wiley & Sons, 2000 | | Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, N | Managing Six S | | ctical Guide to U | nderstanding, Ass | sessing, and | l Implementing the |
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| Website/URL references 1 https://www.sixsigmaonline.org/ | | | | chnical Pub | olications, 2020 | | | |
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| 2 1.44// | | | | | | | | |
| 2 https://www.investopedia.com/terms/s/six-sigma.asp | | Inttps://www.investopedia.com/terms/s/six-sigma.asp | | | | | | |

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|--|--|-------------|------------|-----------|-----------------------------|---|----------|------------|-------|------|----------|-----------------|--------------------------|----------|
| Level 1 (L1): Remembering | | | | | Fixed | Level 4 (L4) : Analysing Level 5 (L5) : Evaluating | | | | | | Higher Order | Projects / Mini Projects | |
| Level 2 (L2): Understanding Lower Order Thinking | | | | | Hour | | | | | | | | | |
| Level 3 (L3): Applying | | | | | Exams | Level 6 (L6) : Creating | | | | | Thinking | | | |
| | | | Mappi | ng sylla | bus with Bloom's Taxo | nomy L | OT and | l нот | | | | | | |
| Un | it No | | | Unit I | Name | L1 | L2 | L3 | L4 | L5 | L6 | LOT | НОТ | Total |
| Uı | Unit 1 LEAN AND SIX SIGMA BACKROUND AND FUNDAMENTALS | | | | | 2 | 9 | 0 | 0 | 0 | 0 | 11 | 0 | 11 |
| Uı | nit 2 | THE SCO | PE OF TO | OOLS AN | D TECHNIQUES | 3 | 9 | 3 | 0 | 0 | 0 | 15 | 0 | 15 |
| Uı | nit 3 | SIX SIGN | ИА МЕТН | ODOLOG | GIES | 4 | 9 | 3 | 0 | 0 | 0 | 16 | 0 | 16 |
| Unit 4 SIX SIGMA IMPLEMENTATION AND CHALLENGES | | | | | 4 | 9 | 3 | 0 | 0 | 0 | 16 | 0 | 16 | |
| Unit 5 EVALUATION AND CONTINOUSIMPROVEMENT METHODS | | | | | | 5 | 9 | 3 | 0 | 0 | 0 | 17 | 0 | 17 |
| Total | | | | | 18 | 45 | 0 | 0 | 0 | 0 | 75 | 0 | 75 | |
| Total Percentage | | | | 24 | 60 | 0 | 0 | 0 | 0 | 100 | 0 | 100 | | |
| | | | | | | CO P | O Map | ping | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 1 | 0 | 2 | 0 | 0 |
| CO2 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 1 | 0 | 2 | 0 | 0 |
| CO3 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 1 | 0 | 2 | 0 | 0 |
| CO4 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 1 | 0 | 2 | 0 | 0 |
| CO5 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 1 | 0 | 2 | 0 | 0 |
| Avg | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 1 | 0 | 2 | 0 | 0 |
| | | | | | Jus | tification | for CO-l | PO mapping | ; | | | | | |
| CO1 | Students | can know | about the | basic kr | owledge of lean six sigma | | | | | | | | | |
| CO2 | Students | can identi | fy the pro | blem wit | h the help of using the six | sigma to | ols. | | | | | | | |
| CO3 | Students | can use six | x sigma n | nethods f | or reducing the failure. | | | | | | | | | |
| CO4 | | | • | | olementation and challenge | | | | | | | | | |
| CO5 | The stude | nts is able | to impro | ve conti | ous quality improvement | in produ | ction. | | | | | | | |
| | 3 | | High level | | 2 | | | Moderate | level | | 1 | | L | ow level |
| | | | | | | | | | | | | | | |
| ma dr | Sign of Fa | culty Inch | arge · Dr | SPRAS | ATH / | | | | | | | | | |

Format No :231

Head of the Department

: Dr.S.PRASATH /