E Content Delivery of Additive Manufacturing-15ME82

Materials	Topic	PPT	E- materials/ Video Links	Date and duration(1Hr)	Feedback Recived(48)
Module 3:	**Basic Concepts:** Introduction to Polymers used for additive manufacturing: polyamide, PF resin, polyesters etc.		**PDF of Entire module already attached in google classroom**	26/03/2020	36
			https://aits-tpt.edu.in/wp-content/uploads/2018/08/UNIT-II-Polymers.pdf		
	PF resin, polyesters etc.		https://en.wikipedia.org/wiki/Polyester_resin	27/03/2020	40
			https://blog.oureducation.in/phenolic-resin-properties-of-phenol-formaldehyde/		
	Molecular weight [MW], Molecular Weight Distribution [MWD]		https://pubs.acs.org/doi/pdf/10.1021/ed058p867	28/03/2020	44
			https://www.agilent.com/cs/library/technicaloverviews/Public/5990-7890EN.pdf		
			https://www.youtube.com/watch?v=5qORVNmfg8E		
	Polymer Processing: Methods of spinning for additive manufacturing: Wet spinning, Dry spinning.		https://textilestudycenter.com/melt-spinning-dry-spinning-and-wet-spinning-method/	30/03/2020	44
			https://www.youtube.com/watch?v=5qORVNmfg8E		
			https://www.youtube.com/watch?v=5qORVNmfg8E		
	Biopolymers, Compatibility issues with polymers. Moulding and casting of polymers, Polymer processing techniques		https://www.youtube.com/watch?v=ZN2oxUvUgN0	31/03/2020	40
			https://www.youtube.com/watch?v=qn16JtE_vLc		
			http://www-materials.eng.cam.ac.uk/3C1archive/handout5.pdf		
	General Concepts: Introduction and History of Powder Metallurgy (PM), Present and Future Trends of PM		https://www.ukessays.com/essays/engineering/historical-development-of-powder-metallurgy.php	1/4/2020	41
			https://www.pickpm.com/introduction-powder-metallurgy/		
	Powder Production Techniques: Different Mechanical and Chemical methods, Atomization of Powder, other emerging processes.		https://www.pm-review.com/introduction-to-powder-metallurgy/powder-production-technologies/	2/4/2020	43
			https://www.youtube.com/watch?v=5qORVNmfg8E		
			https://www.youtube.com/watch?v=N4-kfSD6XJI		
Polymers and Powder Metallurgy	**Characterization Techniques**: Particle Size & Shape Distribution, Electron Microscopy of Powder, Interparticle Friction, Compression ability, Powder Structure, Chemical Characterization	**PPT of Entire module to Google Classroom(Sfmh7wi)**	https://youtu.be/1I7KmryYw74	3/4/2020	42
			https://www.tandfonline.com/doi/abs/10.1080/17452759.2016.1250605?scroll=top&needAccess=true&journalCode=nvpp20		
			https://www.researchgate.net/publication/279435044_Particle_Powder_and_Compact_Characterization		
	Micro structure Control in Powder: Importance Microstructure Study, Microstructures of Powder by Different techniques		https://www.youtube.com/watch?v=UuHofNW40Yw	4/4/2020	42
			https://dl.asminternational.org/handbooks/book/38/chapter-abstract/489982/Metallography-and-Microstructures-of-Powder?redirectedFrom=fulltext		
			https://onlinelibrary.wiley.com/doi/pdf/10.1002/9783527684489.ch1		
			http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.879.5965&rep=rep1&type=pdf		
	Powder Shaping: Particle Packing Modifications, Lubricants & Binders, Powder Compaction & Process Variables, Pressure & Density Distribution during Compaction, Isotactic Pressing, Injection Moulding, Powder Extrusion, Slip Casting, Tape Casting.		https://slideplayer.com/slide/1555170/	6/4/2020	40
			https://drive.google.com/open?id=18W4RhGCOBGRKgx8iRtJOCAdUJCzvcX1K&authuser=0		
			https://drive.google.com/open?id=10HboNnJ_nBSzYkKGNpbsKpWZ1PO7uS_N&authuser=0		
	Sintering: Theory of Sintering, Sintering of Single & Mixed Phase Powder, Liquid Phase Sintering Modern Sintering Techniques, Physical & Mechanical Properties Evaluation, Structure-Property Correlation Study, Modern Sintering		https://www.sciencedirect.com/topics/chemistry/sintering	7/4/2020	40
			https://www.youtube.com/watch?v=NzCeMxq0bPs		

	techniques, Defects Analysis of Sintered Components				
	Application of Powder Metallurgy: Filters, Tungsten Filaments, Self-Lubricating Bearings, Porous Materials, Biomaterials etc.		https://www.slideshare.net/dubeycoolrahul/powder-metallurgy-and-3-d-printing-technology-62269439 https://www.youtube.com/watch?v=AhHe4UjXhoc	8/4/2020	40
Module 4:	**Introduction:** Importance of Nano-technology, Emergence of Nanotechnology, Bottom-up and Top-down approaches, challenges in Nanotechnology		PDF NOTES OF MODULE 4 Uploaded to Google classroom https://www.nanowerk.com/spotlight/spotid=5608.php https://onlinelibrary.wiley.com/doi/abs/10.1002/9780470661345.smc195 https://shodhganga.inflibnet.ac.in/bitstream/10603/195880/5/05_contents.pdf	9/4/2020	40
NANO MATERIALS & CHARACTERIZATION TECHNIQUES:	**Nano-materials Synthesis and Processing:** Methods for creating Nanostructures; Processes for producing ultrafine powders- Mechanical grinding; Wet Chemical Synthesis of Nano-materials- sol-gel process	**PPT of Entire module to Google Classroom(Sfmh7wi)**	https://www.nanowerk.com/how_nanoparticles_are_made.php	10/4/2020	40
	Gas Phase synthesis of Nano-materials- Furnace, Flame assisted ultrasonic spray pyrolysis; Gas Condensation Processing (GPC), Chemical Vapour Condensation(CVC).		https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3591782/ http://www.atm.helsinki.fi/FAAR/reportseries/rs-187.pdf	11/4/2020	40
	Optical Microscopy - principles, Imaging Modes, Applications, Limitations.		https://www.eolss.net/Sample-Chapters/C05/E6-08-03-01.pdf	13/04/2020	42
	Scanning Electron Microscopy (SEM) - principles, Imaging Modes, Applications, Limitations.		https://serc.carleton.edu/research_education/geochemsheets/techniques/SEM.html	15/04/2020	42
	Transmission Electron Microscopy (TEM) - principles, Imaging Modes, Applications, Limitations.		https://www.researchgate.net/publication/325282720_Uses_of_Transmission_Electron_Microscope_in_Microscopy_and_its_Advantages_and_Disadvantages https://www.youtube.com/watch?v=sCJxxkeOaGw https://www.microscopemaster.com/transmission-electron-microscope.html https://www.news-medical.net/life-sciences/What-is-Transmission-Electron-Microscopy.aspx	16/04/2020	42
	X- Ray Diffraction (XRD) - principles, Imaging Modes, Applications, Limitations.		https://www.iitk.ac.in/che/pdf/resources/XRD-reading-material.pdf http://prism.mit.edu/xray/Basics%20of%20X-Ray%20Powder%20Diffraction.pdf https://www.youtube.com/watch?v=QHMzFUo0NL8	17/04/2020	40
	Scanning Probe Microscopy (SPM) - principles, Imaging Modes, Applications, Limitations		https://www.azonano.com/article.aspx?ArticleID=1653 https://www.youtube.com/watch?v=OFWNHTIm_O8 http://home.ufam.edu.br/berti/nanomateriais/Scanning%20Probe%20Microscopy%20%E2%80%93%20Principle%20of%20Operation,%20Instrumentation,%20and%20Probes.pdf	18/04/2020	40
	Atomic Force Microscopy (AFM) - basic principles, instrumentation, operational modes, Applications, Limitations.		https://www.researchgate.net/publication/310462833_Atomic_Force_Microscopy_Methods_and_Applications https://my.eng.utah.edu/~lzang/images/Lecture_10_AFM.pdf	20/04/2020	42
	Electron Probe Micro Analyzer (EPMA) - Introduction, Sample preparation, Working procedure, Applications,		https://ocw.mit.edu/courses/earth-atmospheric-and-planetary-sciences/12-141-electron-microprobe-analysis-january-iap-2012/lecture-notes/MIT12_141IAP12_coursenotes.pdf http://www.jsg.utexas.edu/microbeam/files/Zhao2015.pdf https://www.researchgate.net/publication/284187581_Electron_Probe_Microanalysis_A_Review_of_the_Past_Present_and_Future	21/04/2020	43
Module 5	Introduction to NC/CNC/DNC machine tools	**PPT of Entire module to Google Classroom(Sfmh7wi)**	https://www.slideshare.net/nilraj11/nc-cnc-dnc-machine,https://www.youtube.com/watch?v=tEfn7k-4WwM https://www.youtube.com/watch?v=VZac8cuLpzw	22/04/2020	42
MANUFACTURING CONTROL AND AUTOMATION	Classification of NC /CNC machine tools, Advantage, disadvantages of NC /CNC machine tools, Application of NC/CNC		https://learnmechanical.com/cnc-machine/ https://www.youtube.com/watch?v=tEfn7k-4WwM	23/04/2020	42

	CNC programming and introduction, Manual part programming: Basic (Drilling, milling, turning etc.),		https://www.thomasnet.com/articles/custom-manufacturing-fabricating/understanding-cnc-machining/ https://trimantec.com/blogs/t/machining-processes-overview https://www.autodesk.com/products/fusion-360/blog/computer-aided-manufacturing-beginners/	24/04/2020	41
	Special part programming, Advanced part programming,		https://www.cnccookbook.com/cnc-programming-g-code/ https://www.youtube.com/watch?v=5XihF05K4yM https://www.cnccookbook.com/cnc-software/	25/04/2020	39
	Computer aided part programming (APT)		https://www.youtube.com/watch?v=sJm1Nyb-AkE http://www.youtube.com/watch?v=Ocx0kIMw7LQ	27/04/2020	40
	Automation in production system principles and strategies of automation		https://www.helpsystems.com/resources/articles/10-principles-automation https://electrical-engineering-portal.com/9-reasons-for-automation-of-manufacturing-processes	28/04/2020	42
	Basic Elements of an automated system		https://www.youtube.com/watch?v=cSArdiJ70dM https://www.youtube.com/watch?v=KLNegFl566w	29/04/2020	43
	Advanced Automation functions. Levels of Automations		https://neilpatel.com/blog/marketing-automation-tools/ https://www.youtube.com/watch?v=lQHaWLiawTs	4/4/2020	42
	Introduction to automation productivity		https://www.process.st/business-process-automation-benefits/ https://cerasis.com/industrial-automation/ https://youtu.be/libw1rV2McY https://www.business2community.com/strategy/introduction-automated-interactive-processes-01806235	5/5/2020	41
	Industrial control system.		https://realpars.com/what-is-discrete-automation/ https://itelligencegroup.com/us/industries/discrete-industries/ https://www.youtube.com/watch?v=arMDx7GsByQ	6/5/2020	41
	Process industry vs discrete manufacturing industries		https://www.rklesolutions.com/blog/discrete-or-process-erp https://youtu.be/-nthiBmJ5_M https://www.youtube.com/watch?v=DVoRmkswGGY	7/5/2020	41
	Continuous vs discrete control.		https://www.frontiersin.org/articles/10.3389/fbioe.2020.00007/full https://www.youtube.com/watch?v=14cMhrp5wlk	8/5/2020	40
	Continuous process and its forms. Other control system components.		https://youtu.be/QUfNGwBQJ-s https://www.youtube.com/watch?v=jXRksET5vNo	9/5/2020	39

E Content Delivery of Additive Manufacturing-15ME82

Materials	Topic	PPT	E- materials/ Video Links	Date and duration(1Hr)	Feedback Recived(48)
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			https://aits-tpt.edu.in/wp-content/uploads/2018/08/UNIT-II-Polymers.pdf		
	PF resin, polyesters etc.		https://en.wikipedia.org/wiki/Polyester_resin	27/03/2020	40
			https://blog.oureducation.in/phenolic-resin-properties-of-phenol-formaldehyde/		
	Molecular weight [MW], Molecular Weight Distribution [MWD]		https://pubs.acs.org/doi/pdf/10.1021/ed058p867	28/03/2020	44
			https://www.agilent.com/cs/library/technicaloverviews/Public/5990-7890EN.pdf		
			https://www.youtube.com/watch?v=5qORVNmfg8E		
	Polymer Processing: Methods of spinning for additive manufacturing: Wet spinning, Dry spinning.		https://textilestudycenter.com/melt-spinning-dry-spinning-and-wet-spinning-method/	30/03/2020	44
			https://www.youtube.com/watch?v=5qORVNmfg8E		
			https://www.youtube.com/watch?v=5qORVNmfg8E		
	Biopolymers, Compatibility issues with polymers. Moulding and casting of polymers, Polymer processing techniques		https://www.youtube.com/watch?v=ZN2oxUvUgN0	31/03/2020	40
			https://www.youtube.com/watch?v=qn16JtE_vLc		
			http://www-materials.eng.cam.ac.uk/3C1archive/handout5.pdf		
	General Concepts: Introduction and History of Powder Metallurgy (PM), Present and Future Trends of PM		https://www.ukessays.com/essays/engineering/historical-development-of-powder-metallurgy.php	1/4/2020	41
			https://www.pickpm.com/introduction-powder-metallurgy/		
	Powder Production Techniques: Different Mechanical and Chemical methods, Atomization of Powder, other emerging processes.		https://www.pm-review.com/introduction-to-powder-metallurgy/powder-production-technologies/	2/4/2020	43
			https://www.youtube.com/watch?v=5qORVNmfg8E		
			https://www.youtube.com/watch?v=N4-kfSD6XJI		
Polymers and Powder Metallurgy	**Characterization Techniques**: Particle Size & Shape Distribution, Electron Microscopy of Powder, Interparticle Friction, Compression ability, Powder Structure, Chemical Characterization	**PPT of Entire module to Google Classroom(Sfmh7wi)**	https://youtu.be/1I7KmryYw74	3/4/2020	42
			https://www.tandfonline.com/doi/abs/10.1080/17452759.2016.1250605?scroll=top&needAccess=true&journalCode=nvpp20		
			https://www.researchgate.net/publication/279435044_Particle_Powder_and_Compact_Characterization		
	Micro structure Control in Powder: Importance Microstructure Study, Microstructures of Powder by Different techniques		https://www.youtube.com/watch?v=UuHofNW40Yw	4/4/2020	42
			https://dl.asminternational.org/handbooks/book/38/chapter-abstract/489982/Metallography-and-Microstructures-of-Powder?redirectedFrom=fulltext		
			https://onlinelibrary.wiley.com/doi/pdf/10.1002/9783527684489.ch1		
			http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.879.5965&rep=rep1&type=pdf		
	Powder Shaping: Particle Packing Modifications, Lubricants & Binders, Powder Compaction & Process Variables, Pressure & Density Distribution during Compaction, Isotactic Pressing, Injection Moulding, Powder Extrusion, Slip Casting, Tape Casting.		https://slideplayer.com/slide/1555170/	6/4/2020	40
			https://drive.google.com/open?id=18W4RhGCOBGRKgx8iRtJOCAdUJCzvcX1K&authuser=0		
			https://drive.google.com/open?id=10HboNnJ_nBSzYkKGNpbsKpWZ1PO7uS_N&authuser=0		
	Sintering: Theory of Sintering, Sintering of Single & Mixed Phase Powder, Liquid Phase Sintering Modern Sintering Techniques, Physical & Mechanical Properties Evaluation, Structure-Property Correlation Study, Modern Sintering		https://www.sciencedirect.com/topics/chemistry/sintering	7/4/2020	40
			https://www.youtube.com/watch?v=NzCeMxq0bPs		

	techniques, Defects Analysis of Sintered Components				
	Application of Powder Metallurgy: Filters, Tungsten Filaments, Self-Lubricating Bearings, Porous Materials, Biomaterials etc.		https://www.slideshare.net/dubeycoolrahul/powder-metallurgy-and-3-d-printing-technology-62269439 https://www.youtube.com/watch?v=AhHe4UjXhoc	8/4/2020	40
Module 4:	**Introduction:** Importance of Nano-technology, Emergence of Nanotechnology, Bottom-up and Top-down approaches, challenges in Nanotechnology		PDF NOTES OF MODULE 4 Uploaded to Google classroom https://www.nanowerk.com/spotlight/spotid=5608.php https://onlinelibrary.wiley.com/doi/abs/10.1002/9780470661345.smc195 https://shodhganga.inflibnet.ac.in/bitstream/10603/195880/5/05_contents.pdf	9/4/2020	40
NANO MATERIALS & CHARACTERIZATION TECHNIQUES:	**Nano-materials Synthesis and Processing:** Methods for creating Nanostructures; Processes for producing ultrafine powders- Mechanical grinding; Wet Chemical Synthesis of Nano-materials- sol-gel process	**PPT of Entire module to Google Classroom(Sfmh7wi)**	https://www.nanowerk.com/how_nanoparticles_are_made.php	10/4/2020	40
	Gas Phase synthesis of Nano-materials- Furnace, Flame assisted ultrasonic spray pyrolysis; Gas Condensation Processing (GPC), Chemical Vapour Condensation(CVC).		https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3591782/ http://www.atm.helsinki.fi/FAAR/reportseries/rs-187.pdf	11/4/2020	40
	Optical Microscopy - principles, Imaging Modes, Applications, Limitations.		https://www.eolss.net/Sample-Chapters/C05/E6-08-03-01.pdf	13/04/2020	42
	Scanning Electron Microscopy (SEM) - principles, Imaging Modes, Applications, Limitations.		https://serc.carleton.edu/research_education/geochemsheets/techniques/SEM.html	15/04/2020	42
	Transmission Electron Microscopy (TEM) - principles, Imaging Modes, Applications, Limitations.		https://www.researchgate.net/publication/325282720_Uses_of_Transmission_Electron_Microscope_in_Microscopy_and_its_Advantages_and_Disadvantages https://www.youtube.com/watch?v=sCJxxkeOaGw https://www.microscopemaster.com/transmission-electron-microscope.html https://www.news-medical.net/life-sciences/What-is-Transmission-Electron-Microscopy.aspx	16/04/2020	42
	X- Ray Diffraction (XRD) - principles, Imaging Modes, Applications, Limitations.		https://www.iitk.ac.in/che/pdf/resources/XRD-reading-material.pdf http://prism.mit.edu/xray/Basics%20of%20X-Ray%20Powder%20Diffraction.pdf https://www.youtube.com/watch?v=QHMzFUo0NL8	17/04/2020	40
	Scanning Probe Microscopy (SPM) - principles, Imaging Modes, Applications, Limitations		https://www.azonano.com/article.aspx?ArticleID=1653 https://www.youtube.com/watch?v=OFWNHTIm_O8 http://home.ufam.edu.br/berti/nanomateriais/Scanning%20Probe%20Microscopy%20%E2%80%93%20Principle%20of%20Operation,%20Instrumentation,%20and%20Probes.pdf	18/04/2020	40
	Atomic Force Microscopy (AFM) - basic principles, instrumentation, operational modes, Applications, Limitations.		https://www.researchgate.net/publication/310462833_Atomic_Force_Microscopy_Methods_and_Applications https://my.eng.utah.edu/~lzang/images/Lecture_10_AFM.pdf	20/04/2020	42
	Electron Probe Micro Analyzer (EPMA) - Introduction, Sample preparation, Working procedure, Applications,		https://ocw.mit.edu/courses/earth-atmospheric-and-planetary-sciences/12-141-electron-microprobe-analysis-january-iap-2012/lecture-notes/MIT12_141IAP12_coursenotes.pdf http://www.jsg.utexas.edu/microbeam/files/Zhao2015.pdf https://www.researchgate.net/publication/284187581_Electron_Probe_Microanalysis_A_Review_of_the_Past_Present_and_Future	21/04/2020	43
Module 5	Introduction to NC/CNC/DNC machine tools	**PPT of Entire module to Google Classroom(Sfmh7wi)**	https://www.slideshare.net/nilraj11/nc-cnc-dnc-machine,https://www.youtube.com/watch?v=tEfn7k-4WwM https://www.youtube.com/watch?v=VZac8cuLpzw	22/04/2020	42
MANUFACTURING CONTROL AND AUTOMATION	Classification of NC /CNC machine tools, Advantage, disadvantages of NC /CNC machine tools, Application of NC/CNC		https://learnmechanical.com/cnc-machine/ https://www.youtube.com/watch?v=tEfn7k-4WwM	23/04/2020	42

	CNC programming and introduction, Manual part programming: Basic (Drilling, milling, turning etc.),		https://www.thomasnet.com/articles/custom-manufacturing-fabricating/understanding-cnc-machining/ https://trimantec.com/blogs/t/machining-processes-overview https://www.autodesk.com/products/fusion-360/blog/computer-aided-manufacturing-beginners/	24/04/2020	41
	Special part programming, Advanced part programming,		https://www.cnccookbook.com/cnc-programming-g-code/ https://www.youtube.com/watch?v=5XihF05K4yM https://www.cnccookbook.com/cnc-software/	25/04/2020	39
	Computer aided part programming (APT)		https://www.youtube.com/watch?v=sJm1Nyb-AkE http://www.youtube.com/watch?v=Ocx0kIMw7LQ	27/04/2020	40
	Automation in production system principles and strategies of automation		https://www.helpsystems.com/resources/articles/10-principles-automation https://electrical-engineering-portal.com/9-reasons-for-automation-of-manufacturing-processes	28/04/2020	42
	Basic Elements of an automated system		https://www.youtube.com/watch?v=cSArdiJ70dM https://www.youtube.com/watch?v=KLNegFl566w	29/04/2020	43
	Advanced Automation functions. Levels of Automations		https://neilpatel.com/blog/marketing-automation-tools/ https://www.youtube.com/watch?v=lQHaWLiawTs	4/4/2020	42
	Introduction to automation productivity		https://www.process.st/business-process-automation-benefits/ https://cerasis.com/industrial-automation/ https://youtu.be/libw1rV2McY https://www.business2community.com/strategy/introduction-automated-interactive-processes-01806235	5/5/2020	41
	Industrial control system.		https://realpars.com/what-is-discrete-automation/ https://itelligencegroup.com/us/industries/discrete-industries/ https://www.youtube.com/watch?v=arMDx7GsByQ	6/5/2020	41
	Process industry vs discrete manufacturing industries		https://www.rklesolutions.com/blog/discrete-or-process-erp https://youtu.be/-nthiBmJ5_M https://www.youtube.com/watch?v=DVoRmkswGGY	7/5/2020	41
	Continuous vs discrete control.		https://www.frontiersin.org/articles/10.3389/fbioe.2020.00007/full https://www.youtube.com/watch?v=14cMhrp5wlk	8/5/2020	40
	Continuous process and its forms. Other control system components.		https://youtu.be/QUfNGwBQJ-s https://www.youtube.com/watch?v=jXRksET5vNo	9/5/2020	39

Yenepoya Institute of Technology
Department of Mechanical Engineering
Details of Online Classes

Academic Year: 2019-2020 **Semester**: VIII **Course**: Operations Research **Course Code**: 15ME81

Serial No:	Date	Module	Topics Covered	Material link (Video/ppt/Notes/ Question Bank)
1	26-03-2020	Module V	Problems using Maximin minimax method	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb
2	27-03-2020		Problems using Maximin minimax method	https://classroom.google.com/u/0/w/NTUxNTM2NjMyODFa/t/all
3	28-03-2020		Problems using Dominance method	https://www.youtube.com/watch?v=ZeZUevL_Nng 1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb
4	29-03-2020		Problems using Dominance method	https://drive.google.com/drive/u/1/folders/1UG7LbMsO4yjbJ8T70VAoCT5kozDIZn3v https://classroom.google.com/c/NTUxNTM2NjMyODFa
5	30-03-2020		Problems using Dominance method	https://drive.google.com/drive/u/1/folders/1UG7LbMsO4yjbJ8T70VAoCT5kozDIZn3v
6	01-04-2020		Problems using graphical method method	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb https://classroom.google.com/c/NTUxNTM2NjMyODFa
7	02-04-2020		Problems using graphical method method	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb
8	03-04-2020		Johnson's algorithm, sequencing 'n' jobs on single machine using priority rules	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb
9	04-04-2020		sequencing using Johnson's rule-'n' jobs on 2 machines,	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb

10	06-04-2020		sequencing using Johnson's rule-'n' jobs on 3 machines,	https://drive.google.com/drive/u/1/folders/1EKQ9OScjm9RqxTZu9K0Ijr-1hLeYhChd
11	07-04-2020		'n' jobs on 'm' machines	https://drive.google.com/drive/u/1/folders/1EKQ9OScjm9RqxTZu9K0Ijr-1hLeYhChd
12	08-04-2020		Sequencing of2 jobs on 'm' machines using graphical method.	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb
13	09-04-2020		Sequencing of2 jobs on 'm' machines using graphical method.	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb
14	10-04-2020	Module IV	Problems on CPM	https://www.youtube.com/watch?v=pCO6fkeDDOw&t=309s
15	13-04-2020		Problems on CPM	https://www.youtube.com/watch?v=MH1yDrpGwTo&t=43s
16	14-04-2020		Problems on CPM	https://www.youtube.com/watch?v=eks4faOxjRU https://drive.google.com/drive/u/1/folders/1R1yYL66n9pmhZbVG0YQWaMeGRfczq1Lm
17	16-04-2020		Problems on CPM	https://www.youtube.com/watch?v=N4duMTvXVxU&t=380s https://drive.google.com/drive/u/1/folders/1k_EZstufZRaNzM5Do9JaMjY59LP5Edw_
18	17-04-2020		Problems on PERT	https://www.youtube.com/watch?v=wwxN48EyTg0&t=285s https://drive.google.com/drive/u/1/folders/1BD5HaCvbvjCrAFzcv2vO9rkQNvFdFVXO
19	18-04-2020		Problems on PERT	https://drive.google.com/drive/u/1/folders/13l0nkALlf-0tS6a2wtYwMdDLqHaUTRLy https://drive.google.com/drive/u/1/folders/1MWqNyJIMPOxwambbtlyRToNnQdqQfzn0
20	20-04-2020		Problems on PERT- Finding different floats	https://drive.google.com/drive/u/1/folders/13l0nkALlf-0tS6a2wtYwMdDLqHaUTRLy
21	04-05-2020		Problems on PERT- Finding different floats	https://drive.google.com/drive/u/1/folders/13l0nkALlf-0tS6a2wtYwMdDLqHaUTRLy
22	05-05-2020		Crashing of the activities	https://www.youtube.com/watch?v=Lsp7ZCPYl1M&t=16s
23	06-05-2020		Crashing of the activities	https://www.youtube.com/watch?v=jMU8vz9nzXE&t=66s

				https://drive.google.com/drive/u/1/folders/1ZdM4jeuRv59kWPw0eAogkuf5yxrkyh_r
24	07-05-2020	Module V	Transportation problems-North west corner rule	https://www.youtube.com/watch?v=lpKg0NkxBgg&t=122s https://drive.google.com/drive/u/1/folders/1HGppSpK5CAXKI-bGzR85_YYCay_PXQ4U
25	08-05-2020		Least cost method	https://www.youtube.com/watch?v=lpKg0NkxBgg&t=122s
26	11-05-2020		Voggles method	https://www.youtube.com/watch?v=lpKg0NkxBgg&t=122s
27	12-05-2020		Optimization Technique-Modi method	https://www.youtube.com/watch?v=WvklcylFMfo&t=398s https://drive.google.com/drive/u/1/folders/1HGppSpK5CAXKI-bGzR85_YYCay_PXQ4U
28	13-05-2020		Optimization Technique for unbalanced transportation problems	https://www.youtube.com/watch?v=qqXvjuDJdQM&t=8s
29	14-05-2020		Assignment problems	https://www.youtube.com/watch?v=qTT6tJ4qLfU
30	15-05-2020		Assignment problems	https://www.youtube.com/watch?v=qTT6tJ4qLfU
31	18-05-2020		Travelling sales man problems	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb
32	19-05-2020		Travelling sales man problems	https://drive.google.com/drive/u/1/folders/1oyJFjZKMuEJkYwdpzYXbpQgOAW4_73bb https://classroom.google.com/u/0/w/NTUxNTM2NjMyODFa/t/all
33	20-05-2020		Travelling sales man problems	https://classroom.google.com/u/0/w/NTUxNTM2NjMyODFa/t/all

Course: Product Life Cycle Management Course Code: 15ME835

	26/3/2020 to 30/04/2020			
Module	**Topics[1Hr Each]**	**PPT**	**Video Links**	**E-Materials**
15ME835.3 MODULE 3 PRODUCT DEVELOPMENT	New Product Development, Structuring new product development	https://drive.google.com/file/d/1K4xpmSEt48vE7bWRcls4yK193JtGdbUJ/view?usp=sharing	https://www.youtube.com/watch?v=KWy4UgbzCBU&t=262s	https://drive.google.com/file/d/1_ogjwcaCdEGUhNJbWC8mC6ZcB-yBzeg5/view?usp=sharing
	Building decision support system, Estimating market opportunities for new product	https://drive.google.com/file/d/1siqsDMNoMUhubPxvofONx_9BNm9qQkqQ/view?usp=sharing	https://www.youtube.com/watch?v=BpQvGGFdN4A	
	New product financial control, implementing new product development		https://www.youtube.com/watch?v=HN9GtL21rb4&list=PLSGws_74K018yZOnbSaqWJZ837QyBB7vu	
	Market entry decision, launching and tracking new product program.		https://www.youtube.com/watch?v=HN9GtL21rb4&list=PLSGws_74K018yZOnbSaqWJZ837QyBB7vu	
	Concept of redesign of product.		https://www.youtube.com/watch?v=HN9GtL21rb4&list=PLSGws_74K018yZOnbSaqWJZ837QyBB7vu	
	Technological change, methods of technology forecasting	https://www.slideshare.net/harinadhkarimikonda/technological-forecasting	https://www.youtube.com/watch?v=IFD2yjPhr5Y	https://drive.google.com/file/d/1w3t__2nZlSqlH7oKl0f8W9Snmf45gYp2/view?usp=sharing
	Relevance trees, morphological		https://www.youtube.com/watch?v=exHBSulfIvI	

15ME835.4 MODULE 3 TECHNOLOGY FORECASTING	methods	https://www.slideshare.net/harinadhkarimikonda/techniques-of-technology-forecasting https://www.slideshare.net/shitalbharti20/technologyforecasting		https://drive.google.com/file/d/1I3n2hRAd_qY3KX7EVTQQ424VT7gJMbAn/view?usp=sharing https://drive.google.com/file/d/1JD1WdLSvG0j7N4rE2gHAUsuexwAF_y61/view?usp=sharing
	Flow diagram and combining forecast of technologies		https://www.youtube.com/watch?v=81YKymtswGg	
	Integration of technological product innovation and product development in business processes within enterprises		https://www.youtube.com/watch?v=OfheSxjJ9bQ	
	Methods and tools in the innovation process according to the situation		https://www.youtube.com/watch?v=EnxrNIXvLdQ	
	Methods and tools in the innovation process according to the situation		https://www.youtube.com/watch?v=okPwJqKzSKU	
MODULE 5 PRODUCT BUILDING AND	Virtual product development tools for components, machines	https://drive.google.com/file/d/1nbvq0fusDmnAm-cceVQBuFFCdmuCDl9v/view?usp=sharing	https://www.youtube.com/watch?v=ZZ9cBr82Ng0	https://drive.google.com/file/d/1W9G2GY2a5wR2CPkbfVJ8g4XBbjYkWKGB/view?usp=sharing
	Manufacturing plants: 3D CAD systems	https://drive.google.com/file/d/12Tl5pVtEQpUYNTLPVZL2_zUMw1N1dWtx/view?usp=sharing	https://www.youtube.com/watch?v=0Nkd3TY3HwI	
	digital mock-up	https://drive.google.com/file/d/1ILfmqCSK6L7U2ixw32bOH	https://www.youtube.com/watch?v=WBbA9uKP-mA	

STRUCTURES	Model building, Model analysis	5c9K__GNmet/view?usp=sharing		
	Production (process) planning	https://drive.google.com/file/d/1rlQm0w8m8GCsjIo3iRWwDodjS1ZjFJHk/view?usp=sharing	https://www.youtube.com/results?search_query=Production+%28process%29+planning	
	Product data technology		https://www.youtube.com/watch?v=VtA3r_cBa6s	
	Product structures: Variant management	https://drive.google.com/file/d/12NJnpjvSi6el30o6E6xMEVJA2UavNIY4/view?usp=sharing	https://www.youtube.com/watch?v=vGxSJPcx5F8	
	Product configuration		https://www.youtube.com/watch?v=AtYHUStn-mc	
	Material master data	https://drive.google.com/file/d/1-KIqIomKs9YwzSTdfH1Z5Edjf2roUSSM/view?usp=sharing	https://www.youtube.com/watch?v=JF4mUqyoRFg	
	Product description data		https://www.youtube.com/watch?v=p2ZNIfB4yJY	
	Data models, Life cycles of individual items, status of items.		https://www.youtube.com/watch?v=ow4rUuqsDbI https://www.youtube.com/watch?v=ElS8-R0f7gY	