**Manufacturing Videos**

**Exam 1**

**Casting**

**Sand (2’27”)**

<https://www.youtube.com/watch?v=szOwGvYO_Tc>

**Basic Sand Casting Demo (2’24”)**

<https://www.youtube.com/watch?v=9g_JfhjcBAU>

**How its made: Alloy Wheels: (5’)**

<https://www.youtube.com/watch?v=LCMs-7K8nLk>

**How its made: Turbocharger (5’)**

<https://www.youtube.com/watch?v=OyHrgZYfNTs>

**Foundry: Sand, Permanent Mold (Automated) 10’**

<https://www.youtube.com/watch?v=ckbpq6OoiEY>

**Lost Foam Casting: (8’08”) Show to 6’33”**

https://www.youtube.com/watch?v=QQSI6VYhcqw

**Investment Casting: (3’23”)**

<https://www.youtube.com/watch?v=wMzSS3BnMLs>

**Metal Forming**

**Hot Rolling (6’30”)**

<https://www.youtube.com/watch?annotation_id=annotation_657283&feature=iv&src_vid=k6iODHla6qY&v=AuuP8L-WppI>

**Sheet Metal Rolling (2’56”)**

<https://www.youtube.com/watch?v=btzgKAjncSo>

**Sheet Metal Cold Roll Forming (3’06”)**

<https://www.youtube.com/watch?v=k6iODHla6qY>

**Forging**

**Aircraft Turbine Vanes (4’52”)**

<https://www.youtube.com/watch?v=vN3_Wkyl5PQ>

**Connecting Rods (9’14”)**

<https://www.youtube.com/watch?v=ac5qiSDA1Xo>

**Investment Casting/Forging of knee/hip implants (5’00”)**

<https://vimeo.com/87280402>

**Extrusion and Drawing**

**Extrusion** – SME (2’16”)

<https://www.youtube.com/watch?v=Y75IQksBb0M>

**Drawing (1’14”)**

<https://www.youtube.com/watch?v=QKAg1yMZIpY>

Wire Drawing (10’ 14”)

<https://www.youtube.com/watch?v=uwFvGZcjQME>

Wire Drawing (4’43”)

<https://www.youtube.com/watch?v=3OO_aaUEd3o>

**Sheet Metal Sheering** (SME) (4’03”)

<https://www.youtube.com/watch?v=VMu7_W0QE3Y>

**Sheet Metal Operations** (SME) (6’ 34”)

<https://www.youtube.com/watch?v=Rn31IEOKgQ8>

**Metal spinning (4’43”) view at 2x speed**

<https://www.youtube.com/watch?v=3ko8kweSHvg>

**Hydroforming of Suspension Component (5’10”)**

<https://www.youtube.com/watch?v=fOkCKOWpUr0>

**Pressing and Assembly of Car doors (5’00”)**

<https://www.youtube.com/watch?v=r9byGJtbCws>

**Explosive Forming**

<https://www.youtube.com/watch?v=i5OgIcR0DXc>

**End of Exam 1**

**Exam 2**

**Machining**

**Positive vs Negative Rake Angles (2’27”)**

<https://www.youtube.com/watch?v=0b34pkLjIuM>

**Cutting Tool Geometries (1’46”)**

<https://www.youtube.com/watch?v=KSl3dLeeJ5g>

**Cutting Tool Geometries Lathe and Mill SME (26’55”)**

<https://www.youtube.com/watch?v=bbMbFvsRTJo>

**Round Part Machining Summary (SME)) 22’52”)**

https://www.youtube.com/watch?v=NJNwa7UX1ig

**Machining of Round Parts (2’10”)**

<https://www.youtube.com/watch?v=8EsAxOnzEms>

**Single Spindle Automatic Screw Machines (2’08”)**

<https://www.youtube.com/watch?v=6VpCBk7FahI>

**Multi Spindle Lathe (4’50”) play at double speed**

<https://www.youtube.com/watch?v=UdnaTSSZndI>

**Vertical Boring and Turning Machine (4’14” show from 2’20”)**

<https://www.youtube.com/watch?v=A3TeEbiB8eA>

**Hole Making (SME) (1’22”)**

<https://www.youtube.com/watch?v=_VFyL9dxgrY>

**Prismatic Shape Machining**

**Edges/Shoulders/Grooves**

**Peripheral/Slab/End**

<https://www.youtube.com/watch?v=Ef59DogwLrI>

**Facemilling**

<https://www.youtube.com/watch?v=YOSwl08-Yeg>

**Gear Manufacturing (6’ 15”) (SME)**

<https://www.youtube.com/watch?v=B0XSsa79Y1w>

**Gear Manufacturing – how its made (4”59”)**

<https://www.youtube.com/watch?v=XZgsV0AZJJ0>

**Broaching (2’ 13”)**

<https://www.youtube.com/watch?v=rAJx-6SLdP0>

**Sawing (3’05”)**

<https://www.youtube.com/user/MetalsawTV>

**Advanced Processes**

**EDM**

**Part 1: (3’58”)**

<https://www.youtube.com/watch?v=2W4xZYRkWGo>

**Part 2:**

<https://www.youtube.com/watch?v=L1D5DLWWMp8>

**Wire EDM (2’25”)**

<https://www.youtube.com/watch?v=pBueWfzb7P0>

<https://www.youtube.com/watch?v=eaeEn1Gs4aQ>

**Thermal Cutting (2’44)**

<https://www.youtube.com/watch?v=NOiXh80_jXU&list=PL3AFB507B668AF162>

**Laser Cutting (5’05”**

<https://www.youtube.com/watch?v=M_ayRAHezjM>

**End of Exam 2**

**Exam 3**

**3D Printing Applications**

<https://www.youtube.com/watch?v=SxCLd4odxd8>

**Fused Deposition Modeling (2’31”)**

<https://www.youtube.com/watch?v=WHO6G67GJbM>

**Stereolithography (2’ 38”)**

<https://www.youtube.com/watch?v=NM55ct5KwiI>

**Selective Layer Sintering (2’ 30”)**

<https://www.youtube.com/watch?v=9E5MfBAV_tA>

**PolyJet Technology (2’33”)**

<https://www.youtube.com/watch?v=Som3CddHfZE>

**Laminated Object Manufacturing (1’39”)**

<https://www.youtube.com/watch?v=Nkj6yrqfnSs>

**3D Printing (Z-Corp) (4’16”)**

<https://www.youtube.com/watch?v=iSjpJmBUWPw>

**New at FIU! - 3D Systems ProJet MJP 5600**

https://www.3dsystems.com/3d-printers/projet-mjp-5600

**Plastic Forming**

**Plastics Extrusion (3’48”) (SME)**

<https://www.youtube.com/watch?v=0PvN4nywPSg>

**Injection Molding P2 (2’23”) (SME)**

<https://www.youtube.com/watch?v=d4F9jvMBk0Y>

Animation

<https://www.youtube.com/watch?v=b1U9W4iNDiQ>

**Reaction Injection Molding (4’26”)**

<https://www.youtube.com/watch?v=TWEfbGH-Ewc>

**Blow Molding (1’32”) (SME)**

<https://www.youtube.com/watch?v=1PTz_a71zuI>

<https://www.youtube.com/watch?v=oY7hyuMHm68> (2’03”)

<https://www.youtube.com/watch?v=ZfyPCujUPms> (4’50”) Show.

**Rotational Molding**

<https://www.youtube.com/watch?v=4YoJ2hE0SIQ> (1’00)

<https://www.youtube.com/watch?v=a8bUVHLt8d4> (3’21”) watch at 2x

**Thermoforming (1’00)**

<https://www.youtube.com/watch?v=VyIBsmoiqqs>

**Compression Molding**

<https://www.youtube.com/watch?v=-FxiWMnY4aQ>

**Transfer Molding (0’52”)**

<https://www.youtube.com/watch?v=Lp7go_TMe28>

**Foam Molding (4’54”) How its made.**

<https://www.youtube.com/watch?v=sT3-b39q1V0>

**Plastic Casting (6’20)**

<https://www.youtube.com/watch?v=nwhbpcppoqM> (watch at 2x)

RP Molding

<https://www.youtube.com/watch?v=rjFdbhCjKPY>

**Cold Forming (rubber gloves) (watch at 1.5x)**

<https://www.youtube.com/watch?v=A9PMs_N33fU>

**Lean Manufacturing**

* <https://www.youtube.com/watch?v=H63ZKS5qDDY> (1’38”)
* <https://www.youtube.com/watch?v=FZmBQRmDgIc> (3’36”)
* <https://www.youtube.com/watch?v=NJN-lsk_DLU> (2’ 11”)

**End of Exam 3**