

# Engineering Design Technology AAS

## Additive Manufacturing Concentration

Career & Technical Division

### Program Description:

The objective of this degree is to provide individuals entry-level job skills required in several related professions, including engineering technicians, product design technicians (including state-of the art products for medicine, structures, etc.), printers, Computer-Aided Design (CAD) technical specialists, computer modeling specialists, simulation specialists, graphic designers and digital artists. Particular engineering fields include Manufacturing, Mining, Civil, Biomedical, and Marine Engineering. CADD specialists have broad-based skills applicable to the architectural, engineering, design, entertainment, and medical fields. Graduates will have skills essential to architects, engineers, designers, manufacturers, realtors, bankers, printers, creators of computer and graphic simulations, and all digital art applications.

Students in this program will learn 2D and 3D CAD, 3D modeling, rendering, and animation for art, films, and television, product development, engineering process and control, including reverse engineering and prototype development, design processes, organizational design, and business development. Students will have the opportunity to become certified in AutoCAD and Inventor. For students considering a bachelor's degree in engineering, the offering of Statics, Mechanics of Materials, Calculus, and Physics allows students to take these courses in a community college environment.

New manufacturing, engineering, medical, and visual effect processes require the skills students will obtain using state-of-the-art computer programs and prototyping equipment. Students will have access to the most up-to-date Autodesk computer programs, including AutoCAD, Inventor, 3ds Max, Revit, and Maya, as well as the latest prototyping equipment, including a digital printer. Three-dimensional printing is no longer just a prototyping technique, but is now the latest manufacturing process. This process is expected to eventually replace all other manufacturing processes, and the Engineering Design Technology Program trains students in all aspects of this technique. An integrated curriculum, including classes on design and entrepreneurship, allows each graduating class the opportunity to identify, develop and create a prototype for a new product, from conception to construction.

The Engineering Design Technology Program incorporates coordination with a broad-based advisory board of local business representatives, and is designed to prepare graduates with state-of-the-art skills required in the rapidly changing manufacturing, engineering, design, health and visual effects fields. Upon completion of the Engineering Design Technology Associate in Applied Science Degree, the graduate will be able to:

- Create 2D representations of objects,
- Create 3D representations of objects, and produce realistic representations of these objects through state-of-the-art rendering and animation techniques,
- Work in a group to conceptualize, design, and check the viability of a new product, and create a prototype of that product,
- Reverse engineer and create a prototype of an existing object,
- Check the efficiency of various engineering processes,
- Create photorealistic representations of any object, including 3D architectural designs, and
- Create a new business in WV.

### Contact Information:

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*Our mission is to prepare students for careers, civic responsibility and life-long learning.*

**Engineering Design Technology – Major Code CCE50 · Additive Manufacturing Concentration CM45**

<b>Name:</b>			<b>ID Number 942-</b>	
<b>CAPS SCORES:</b>	<b>MATH:</b>	<b>ENGLISH:</b>	<b>READ:</b>	<b>DOE:</b>
<b>COL 101 Faculty:</b>				
<b>Educational Counselor:</b>				
<b>Faculty Advisor:</b>				

COURSE	REQUIREMENTS	SEM	HRS	GR	SUBSTITUTE/REPEAT CRS	SEM	CR
MT 105	Industrial Safety (RCBI)		2				
MAT 135	Math for Machinists <sup>1</sup> (RCBI)		3				
MFE 116	Manufacturing Processes		3				
MFE 230	Computer Aided Design II (RCBI)		4				
MT 200	Blueprint Reading		3				
MAT 205	Calculus <sup>2</sup>		3				
MFE 246	Computer Aided Manufacturing (RCBI)		4				
MFE 248	Statistical Process & Control		3				
MFE 255	Rapid Prototyping Techniques <sup>3</sup>		3				
EC 102	Basic Economics <sup>4</sup>		3				
MFE 201	Composite Materials, Tooling/Mold Design		3				
MFE 240	Statics <sup>5</sup>		3				
MFE 262	Engineering Design <sup>6</sup>		4				
SCI 110	Introductory Physics <sup>7</sup>		4				
COM 125	Interpersonal Communication		3				
ENL 231			3				
MFE 103	Entrepreneurship in MFE		3				
MFE 202	Additive Manufacturing Techniques		3				
MFE 245	Mechanics of Materials		3				
MFE 253	3D Scanning for Reverse Engineering		4				

**DEVELOPMENTAL COURSES REQUIRED**

COURSE	REQUIREMENTS	SEM	HRS	GR	SUBSTITUTE/REPEAT CRS	SEM	CR

**REQUIRED HOURS FOR GRADUATION: 61**

<sup>1</sup> MAT 135 has a prerequisite of placement in 100-level or above.

<sup>2</sup> MAT 205 has a prerequisite of MAT 146.

<sup>3</sup> MFE 255 has a prerequisite of MFE 230.

<sup>4</sup> EC 102, COM 125, and ENL 231 have a prerequisite of placement in 100-level or above.

<sup>5</sup> MFE 240 has a prerequisite of MAT 205.

<sup>6</sup> MFE 262 has a prerequisite of MFE 220 and MFE 230.

<sup>7</sup> SCI 110 has a prerequisite of MAT 125, or MAT 135, or MAT 145.

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