What is CAD/CAM?

Computer Aided Design (CAD) involves the use of computer hardware and graphics software to generate design drawings. Modern CAD equipment enables the designer to quickly produce very accurate and realistic images of products to be manufactured.

Computer Aided Manufacturing (CAM) is a system of automatically producing finished products by using computer controlled production machines. CAD and CAM work together in that the digital model generated in CAD is inputted to the CAM software package. The CAM software needs to know the physical shape of the product (CAD model) before it can compose a proper set of fabrication instructions to a production machine.

What Does a CAD/CAM Operator Do?

CAD operators are in demand in virtually every area of design. A CAD operator with a background in architectural design, for example, would find employment in a firm that is involved in either residential or commercial construction.

The operator would generate construction drawings on CAD from sketches and specifications from the architect. All modifications, schedules and 3D presentation models would also be created in CAD and plotted for the office and the client.

The CAM operator, works with the production engineer to develop a process plan or plan to manufacture a part. The operator then utilizes CAM software to generate a set of instructions to the computer controlled manufacturing machines. The operator takes care the process plan is adhered to when generating the instructions. The CAM operator and production engineer select the machine(s) and cutting tool(s) to be used in production.

What Must a CAD/CAM Operator Know?

A CAD/CAM operator should be able to read and write well. A basic knowledge of college level algebra, trigonometry, manual drafting practices, the Windows operating system, 2D and 3D CAD, manual shop practices, production processes, manual programming of computer controlled production machines as well as using CNC software to program such machines is recommended.

How Does One Become a CAD/CAM Operator?

The optimum path to becoming a CAD/CAM operator is to seek the best available training. Upon graduation from high school, students are encouraged to enroll in a two year associate degree program with a concentration in CAD/CAM technology. Graduates can then seek direct employment experience in the field or go on to pursue a four year degree at a senior institution. They can also opt to
obtain work experience while they pursue a four year degree part time. Many employers pay part of the expense for college level courses aimed at an employee’s continued development.

**How Does One Find a Job As a CAD/CAM Operator?**

Departments with technical programs in CAD/CAM technology maintain a database of jobs in the field. They assist seniors in writing resumes, assembling portfolios of their work, and in arranging for interviews.

Positions are also listed daily on such websites as [www.monster.com](http://www.monster.com), [www.hotjobs.com](http://www.hotjobs.com), [www.computerjobs.com](http://www.computerjobs.com), [www.nytdigital.com](http://www.nytdigital.com), [www.cadcamrecruiters.com](http://www.cadcamrecruiters.com).

**What Kind of Salary and Benefits Do CAD/CAM Technicians Receive?**

Salaries and benefits depend upon many factors, years experience, area, employer type(large/small, governmental or private), product produced, etc. Median salary ranges for CAD/CAM operators are listed below:

<table>
<thead>
<tr>
<th>Years of Experience</th>
<th>Expected Median Salary Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3</td>
<td>28k - 30k</td>
</tr>
<tr>
<td>3 - 5</td>
<td>40k - 50k</td>
</tr>
<tr>
<td>5 - 10</td>
<td>60k - 70k+</td>
</tr>
</tbody>
</table>

Persons promoted to CAD/CAM managers or project directors can expect to start earning 60k – 80k+

Full time employee benefit packages include full medical and dental plans as well a retirement plan.

**What Preparation Does a High School Student Need?**

High school students interested in pursuing careers in CAD/CAM technology should seek out courses in industrial arts dealing with drafting, CAD and shop.

**How Does One Pay for College?**

The following methods can be used to pay for your college education:

- Saving over a long period of time
- Taking out a student loan
- Arranging for parents or guardians to pay some or all expenses
- Applying for scholarships
- Working part time(full time employment is not recommended for full time students)
- Applying for state reimbursement programs(TAP/PELL)
Students with budget constraints should also take advantage of the many excellent technology programs offered at state, city and community colleges. The tuition at these institutions is substantially lower than the more pricey private colleges.

CAD/CAM Related Career Paths

The following career paths are also pursued by persons interested in the field of CAD/CAM technology:

- Engineering
- Animation
- CAD/CAM software development
- CAD/CAM hardware development
- CAD/CAM software maintenance and troubleshooting
- CAD/CAM consulting services
- CAD/CAM instruction services
- CAD/CAM marketing and sales
- Simulation technology
- Robotics
- Digital art and advertising
- Internet development and consulting
- Cutting tool designer
- Architectural designer
- Rehabilitation technology
- Medical imaging systems
- Digital gaming and amusement systems

A Partial Listing of Four Year Degree (bachelor's) Programs in CAD/CAM

- New York City Technical College
- City College
- Fashion Institute of Technology
- SUNY Institute of Technology
- SUNY Alfred
- Rochester Institute of Technology
- New Jersey Institute of Technology
- Notheastern University
- Buffalo State
- Penn State University
- Purdue University
- Drexel University
- North Carolina State
- Eastern Michigan University
- Wichita State University
- West Virginia State
- Community and Technical College
- Michigan Technological University
- University of Georgia
- Texas Tech University
Web Links and Sources of Career Information

Students interested in careers in CAD/CAM technology will find an abundant number of web sites to explore.

Some main recommended sites are listed below:
- www.monster.com (select category cad/cam)
- www.hotjobs.com (select category cad/cam)
- www.google.com in google enter cad/cam+degree programs or cad/cam+careers or cad/cam+scholarships or scholarships

QCC Contact Information

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