



## Employment Assistance

# FRONTLINE

## R E P O R T



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### IEEE-USA

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### Engineering Employment Outlook

It never fails — one of the first questions anybody asks when we say we're with the Employment Assistance Committee is "how does the employment situation look." So, here's an attempt at an answer. Much of the following data was supplied by the IEEE-USA Workforce Committee. For questions or additional information, contact Vin O'Neill, v.oneill@ieee.org, 202-785-0017.

Engineering employment in the United States has always been characterized by booms and busts — by substantial increases in employment in the late 1960's, by cutbacks in the early 1970's, by sus-

tained growth from 1975 through the 1980's and by sharp cutbacks between 1990 and 1993. As can be seen in fig. 1, in this decade alone, engineering employment peaked at 1.86 million in 1990, dropped to 1.72 million in 1993 and jumped back up to 1.89 million in 1994.

Cutbacks in defense spending coupled with corporate mergers, acquisitions and downsizings in the face of increasing international competition resulted in unprecedented increases in the numbers of

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### Skills Banks: A Local Job Network Solution

*by Gary Johnson, EAC Resource Member*

How do the members in your section feel about the employment situation locally? Do they want help finding a job? Are they actively networking with peers?

If you don't know the answers to these questions then you aren't spending enough time talking with members. Maybe it's time to start a local Skills Bank. Skills Banks aren't just for the unemployed, they should be actively guiding member careers by providing a picture of the local and national job market, skill sets in demand, and salary ranges. They should be a place to network with fellow engineers and stay prepared for the next job change.

Three or four years ago Skills Banks opened up in several of the larger Section hardest hit by the defense downsizing.

They operated as some combination of resume database, job listing, networking and support group. Each was a little different, tailored to the Section needs and resources. Some have dedicated computer systems and rented office space, and others have a drawer in a filing cabinet at someone's house. Some have networking groups meeting regularly, some have taken advantage of local Consultants' Networks activities, and others are one-man shops.

Currently there are operating Skills Banks in Long Island, Boston, Cleveland, Fort Worth, San Diego, and two in the Los Angeles area. The trend, however, is to phase out the local Skills Banks in favor of the National Job Listing System (JLS) and local Section BBS. IEEE-USA has hit the mark with the Internet listings and current Banks are telling members to use it.

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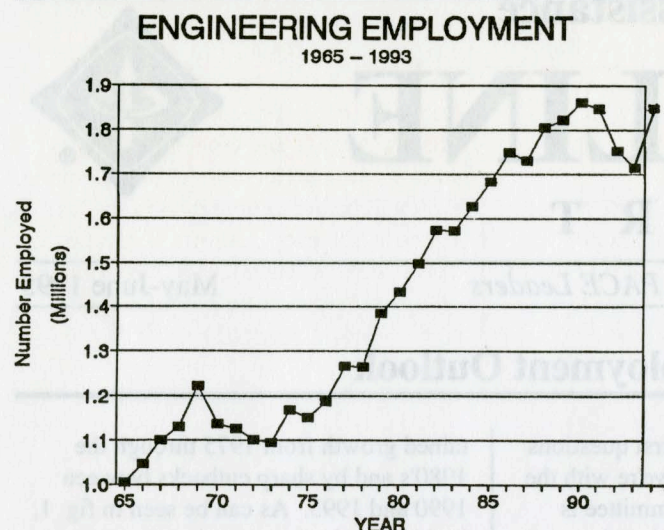


Figure 1: Engineering Employment (all disciplines) 1965 - 1994. Data from the Bureau of Labor Statistics.

unemployed engineers between 1989 and 1993, from 27,000 to 73,000 (fig. 2). Along with the increase in employment, 1994 ended with a decrease in the number of unemployed engineers, down to 68,000. Although some observers feel that the crisis is over, others don't think that America's engineers and scientists are out of the woods yet.

The sharp increases in the number of engineers who were displaced in the early 1990's also boosted unemployment rates from a historical average of around 2% to 4% in 1992. And, although the unemployment rate for all engineers dropped back to 3.5% in 1994, the rate for electrical and electronics engineers increased from 4.0% in 1993 to 4.3% in

1994 (fig. 3).

The Bureau of Labor Statistics reports that for the first quarter of 1995 engineering unemployment is down to 2.7% and electrical engineering unemployment is down from 3.2% (4th quarter 1994) to 2.9%. And, data from the soon to be released IEEE-USA 1995 Salary and Fringe Benefits Survey follows this trend with number of unemployed respondents dropping from 2.7% (in 1993) to 2.3% and the average duration of unemployment decreasing from 34 to 31 weeks.

However, to put a different light on the situation, engineers unemployment rates, while still well short of those experienced

by the labor force in general, are still distinctly higher than those of managers and other kinds of professionals. According to BLS data, while engineering unemployment shot up above 4%, unemployment rate for all professional occupations has been hovering around the 3% level.

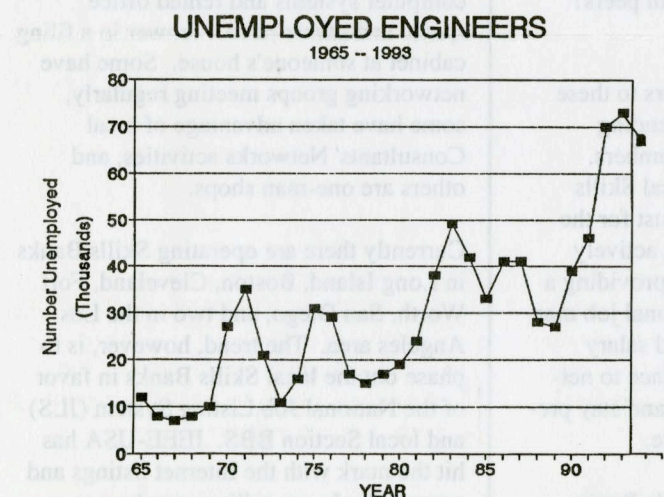


Figure 2: Number of Unemployed Engineers (all disciplines) 1965 - 1994. Based on data from Bureau of Labor Statistics.

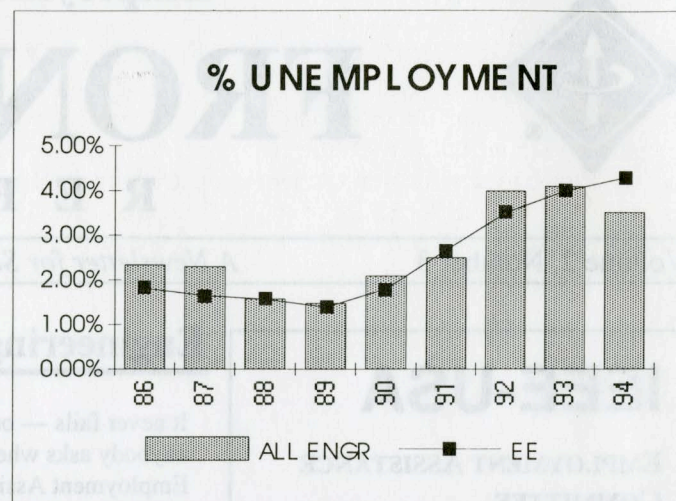


Figure 3: Unemployment Rates for Electrical Engineers vs. all Engineers. Data from Bureau of Labor Statistics

## Other Trends

The American Management Association's 1994 Survey on Downsizing and Assistance to Displaced Workers reports that while workforce reductions as still frequent among their corporate members (713 respondents, most representing large companies grossing more than \$10 million annually) with 47.3% downsizing during the previous year, the cuts are not as deep as in the past, 9.2% in 1994 vs. 10.4% in 1993. And, since more than 67% of downsizing companies concurrently hired new employees, the net job loss was only 5.2%.

AMA also concluded that the reductions have returned to the pre-recessionary pattern of this mid-80's: the reductions are strategic rather than recession-driven; cuts target specific units, functions, and localities rather than across-the-board; salaried workers are more vulnerable to job loss; and downsizing will continue unabated for the foreseeable future.

In addition, the survey reported the highest ever "future index" (i.e., firms planning to cut jobs in the coming year). This is notable because the number can only increase; past surveys show that the actual share of firms that downsize over a survey period is double — in some years, triple — the share that reports plans at the outset of the period.

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A recent report by OECD (Organization for Economic Cooperation and Development) gives a global perspective to the employment situation. In tracing unemployment from 1950 to 1993, the study shows that the pattern for North America is cyclical, with large fluctuations but only a modest increase since 1970. The unemployment rates in Europe show much less cyclical fluctuation during the period of 1950 to 1970 but dramatic increases in recent years. Japan, of course, has managed to keep unemployment rates low, between 1% and the current 3%.

Another portion of the OECD study examined the relationship between long-term unemployment and the inflow rate into unemployment. In the European

Community, the risk of becoming unemployed is low compared with other countries, once unemployed, a worker has relatively little chance of quickly finding another job. In the United States and Canada, on the other hand, there is a greater risk of becoming unemployed, but an unemployed person has a much better chance of being rehired quickly.

## The Crystal Balls say . . .

The BLS projections for the period 1990-2005 forecast employment for engineers to grow slightly faster than the overall economy, but slower than overall professional specialty occupations, and slower than the 1984-90 growth rate:

Total, all occupations	20.7%
Prof. specialty occupations	33.6%
Engineers	26.5%
Electrical & electronics engr.	33.9%

Currently and projected for 2005, more engineers are and will continue to be employed in durable manufacturing than in any other major sector. However, a very significant change is expected to take place in the industrial composition of engineering employment in that the fastest rate of growth (over 62%) is expected for engineers employed in the service sector. This would include: computer programming services, engineering and architectural services, personnel services-temps, and similar types of firms providing services primarily to other businesses.

According to the American Electronics Association, US based electronics manufacturing companies created 111,000 new jobs in 1994. However, despite this industry's reputation for dynamic growth, AEA is predicting that overall employment growth will decline in future years. Continuing productivity growth and outsourcing of labor intensive manufacturing operations to low wage countries will reduce the need for productions workers. In addition, computer engineers and systems analysts are expected to displace electrical, industrial and mechanical engineers as design, development and production becomes more computerized.

The Aerospace Industries Association predicts that after years of declining employment, prospects for finding or keeping a good job remain grim, however, even though cutbacks will continue, they will be less severe than in the last four or five years. Layoffs due to further cuts in defense spending will continue to be compounded by employment reductions following mergers and acquisitions among major contractors and suppliers. California, Massachusetts and Texas are expected to be hardest hit. On the bright side, a few high technology aerospace areas are expected to need more workers in the private (as opposed to the government) sector. These fields include remote sensing, LEO communications satellite and small satellite programs, global positioning systems and theater missile defense systems.

And finally, Corporate Technology Information Services, Inc. of Woburn, MA, reports that small high-technology companies will create an additional 15,000 new jobs in 1995. Job creation by these companies has been accelerating — with a 14.7% increase over the last five years. Job growth is expected to be strong in computer software, equipment manufacturing, energy related products and services, and biotechnology. In addition, small high technology jobs creation is expected to be greatest in the Northwest, Mid-Atlantic, Southeast, Northern California, the Mid-west and Southern California. ♦

## Skills Banks

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While the JLS can replace much of the job listing function provided by the local Skills Bank, it cannot replace the job networking and support function. It cannot replace the personal contact and local network you build with area industry. Rather than completely phasing out the Skills Banks, we need to adapt to the changing employment situation. Companies are not downsizing as dramatically as in the past few years. Hiring is up almost everywhere in the USA but the job skills are much different than in the past. The successful engineer today and in the

future must constantly update their skills. The days of lifetime employment are gone forever.

With your guidance more Skills Banks could be started by a few local volunteers. IEEE-USA has plenty of material available and will assist you in starting and continuing successful Skills Bank activities.

To Start a Skills Bank in your Section:

1. Discuss the need to form a Skills Bank at your local section EXCOM

meeting. Find volunteers to work together to continue the process. Contact other Skills Banks for information and ideas.

2. Discuss the need to form a Skills Bank at section meetings and recruit more volunteers.
3. Schedule an initial meeting of the Skills Bank. Announce the meeting in the Section Newsletter.

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4. Get the message out to as many members as possible. This is the first step in building a peer network. Remind members that this group is for all members, not just the unemployed.
5. At the first meeting:
  - Determine the needs and interests of the membership
  - Bring a print out of the jobs from the IEEE-USA Internet listing. Bring copies of the literature that describes how the auto-response and ftp listings can be retrieved by the members themselves.
  - Agree to meet on a regular basis. Even if it is only before or after regular section meetings.
  - Get names, addresses, and phone numbers of attendees and distribute to each attendee.
  - Get volunteers to form an ad hoc committee to determine the organizational structure.
6. Advertise the following meetings in the Section Newsletter.
7. Consider the following activities for your new Skills Bank. These activities both help find employment and improve networking skills.
  - Find speakers who are hiring managers or contract recruiters to talk about the skills they look for.
  - Find speakers who can help with resume writing and interviewing skills.
  - Set up a means for distributing the Internet job listings weekly. IEEE-

USA updates the listing every Friday.

- Use members who are currently employed to find positions that are open in their companies. Inside information is always beneficial for the applicant. Remember that most jobs are not advertised but are filled by recommendation from within the company.
  - Work on computer skills. The majority of unemployed members don't own or use computers or modems. Computer skills are paramount in today's engineering workplace.
  - Skills Banks become support groups of sorts. It keeps unemployed members in contact with each other. Encourage members to apply for jobs they are interested in even if they don't qualify 100%. Remember job descriptions are often wish lists.
8. Students may be interested in joining your Skills Bank. Try to set up a relationship with local university placement offices. This may be a great way to increase IEEE membership as well.
  9. Once an organization has been formed, think about getting an answering and fax machine. Then you can advertise your service to the engineering community. You provide a free service to companies looking to fill positions. ♦

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