GEC AVIONICS

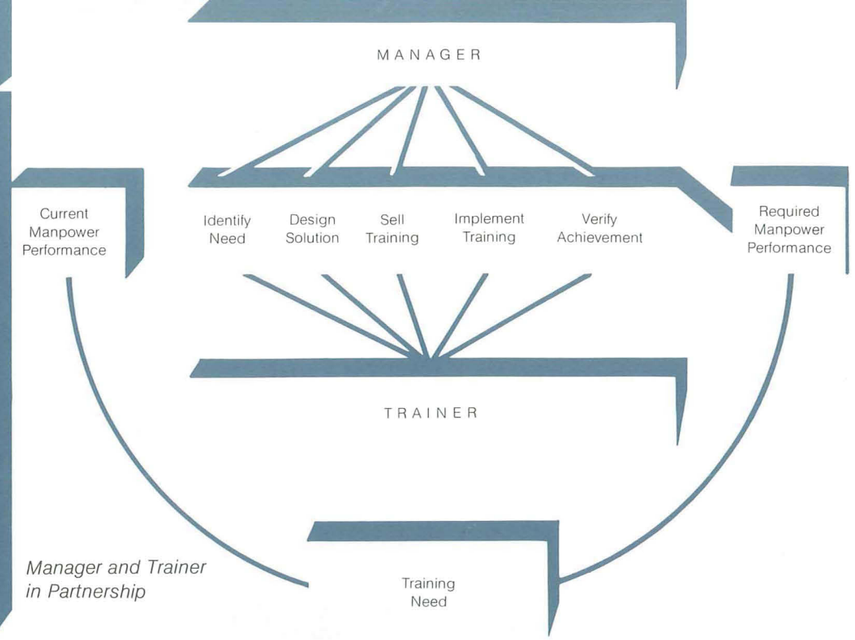
Training
the way to performance
in modern industry

TRAINING AS A PARTNERSHIP

Industrial training is a partnership between the professional trainer and the line manager in which the one advises and assists the other to achieve those improvements in manpower performance which are necessary to maintain and develop his business.

We hope that this brochure will do this by placing on view to line managers, simultaneously, all components of GEC Avionics Rochester establishment's training provision so that they are fully informed about what is and can be made available to them.

Training is dispersed in time and place, often has long lead times between the need being stated and a satisfactory yield being achieved and that yield is often diffused. It is, therefore, difficult to identify easily the total scope, scale or achievement of our training operation.



Manager and Trainer in Partnership

FITTING THE TRAINING TO THE NEED

The training function is justified only if it achieves goals which are seen by managers to be useful and which cannot easily be achieved by other methods.

Thus all training is carried out on behalf of line managers to meet needs which have been expressed by them and, to achieve this, close co-operation is necessary throughout the complete training design/implementation continuum.

Training needs are brought to the attention of training staff in a variety of formal and informal ways - from the request for an individual to attend a specific course to a series of informal signs received over a period of time which aggregate to form a coherent statement of need subsequently developed into a deliverable piece of training.

The training design process involves a series of discussions between the line manager's key staff, potential providers and relevant trainers - resulting in an agreed programme of training activities to meet the need. This is followed by engaging specific trainees with the programme often involving an element of selling either to secure the release of the adult from normal work schedules or the provision of on-job training places of initial trainees.

The final programme of training is inevitably a mixture of continuous progressive experiences which occur at the place of work which are often punctuated by brief but intensive periods of study or training away from the job. The line manager is thus at the same time both a customer and provider of that training which is both designed and delivered through our team of specialist trainers - in partnership with line managers.

BUSINESS NEEDS WHICH HAVE BEEN MET THROUGH TRAINING:

TRAINING PROVISION	RELATED BUSINESS PERFORMANCE
'Introduction to Occam and the Transputer'	Harnessing the enormous potential processing power of Transputer networks requires the development of a fluency in parallel systems design equal to our traditional skills for sequential logic. Attendees on the 'Introduction to Occam and Transputer' course acquire technical knowledge, insight and practical experience necessary for the successful inclusion of this technology in GAv products.
'Winning Business Through Effective Presentations'	To improve the ratio of contracts won to bids made it is necessary to present our ability to meet customers' needs more clearly and professionally.
'Introduction to Ada Engineering' and 'Using the Ada Language'	Ministry of Defence contracts increasingly require the use of Ada. In order to meet the demand for Ada competent engineers, a suite of courses has been developed by GEC Avionics in conjunction with the University of Kent and Mid-Kent College. The courses address the current and anticipated demand for Ada training at GAv Rochester.
Supervisory Training – In-house supervisory management courses range from: 'An Introduction to Supervision' to 'Managing People and Integrated Project Management'	A company's performance is dependent upon the performance of its managers, supervisors and their staff. This means that as staff develop into a supervisory role, training is important to equip them with the necessary skills to perform efficiently themselves and to get the best out of individuals and teams working for them.
Trainee Computer Programmer Scheme	The Trainee Computer Programmer Scheme was first designed and run in conjunction with Mid-Kent College in 1976 in response to the emphasis on software in the business. Since then the course has become increasingly relevant to the needs of real-time software engineering.

YOUNG MINDS: OUR FUTURE. The importance of initial training

GAv has traditionally trained large numbers of initial trainees and about 10% of our workforce consists of young people undergoing training.

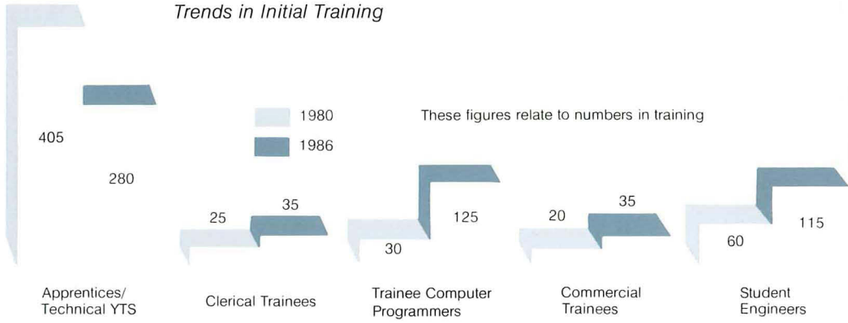
The reasons for this volume are clear. All initial schemes produce manpower, which is in short supply for divisions – engineers, software engineers, technicians and commercial staff – and which is unavailable on the labour market. Further, our requirements are such that we need to control the quality and content of the training given to those who will contribute to our future. Finally, we require a regular infusion of young and fresh minds to meet the demands of our continuously advancing technology.

All schemes involve considerable periods learning about technology in divisions and in order to make the training specific to local needs trainees are attached to a divsion and trained for a specific group of jobs as early as possible within their training span.

We aim to maintain initial trainee volumes at consistent levels to meet predictable manpower needs such as replacements, but not for less predictable expansion requirements.

The balance of initial trainees has shifted over the last half decade to reflect the labour market and the demands of our technology. The diagram opposite, demonstrates that within a similar total the balance has moved away from 16 year old trainees being trained for craft, technician and clerical jobs towards 'A' level entrants who will supply fresh labour to professional engineer, software and commercial categories.

Trends in Initial Training



Our Initial Training Schemes

Scheme	Level of entry	Duration and schedule	Final qualification	Company objective
Student engineer	'A' levels	4 years thin or thick sandwich 4½ years integrated course	M Eng/BSc/ B Eng	Comprehensively formed professional engineers
Apprentices	'O' level	3 or 4 years	BTEC	Technicians for engineering and production engineering and for model shops, manufacturing, repair and test
Youth Training Scheme – Clerical – Technical	CSE	2 years	YTS	To alleviate local youth unemployment simultaneously contributing to Company manpower needs
Trainee computer programmer	'A' level or OND	3 years thick sandwich	HND	Software engineers or programmers with company related real-time education and training
Commercial trainees	'A' level	2 years	BTEC	Qualified purchasing and commercial personnel

STAYING AHEAD: The need for continuing training

Within the context of the continuous and rapid technological change which characterises our business, continuing training aims to provide adult employees with training which will keep them up-to-date both technologically and in terms of their overall performance as employees. Adult training aims to:

- enable employees to work better in their present jobs
- prepare employees for better jobs
- assist employees to work together better

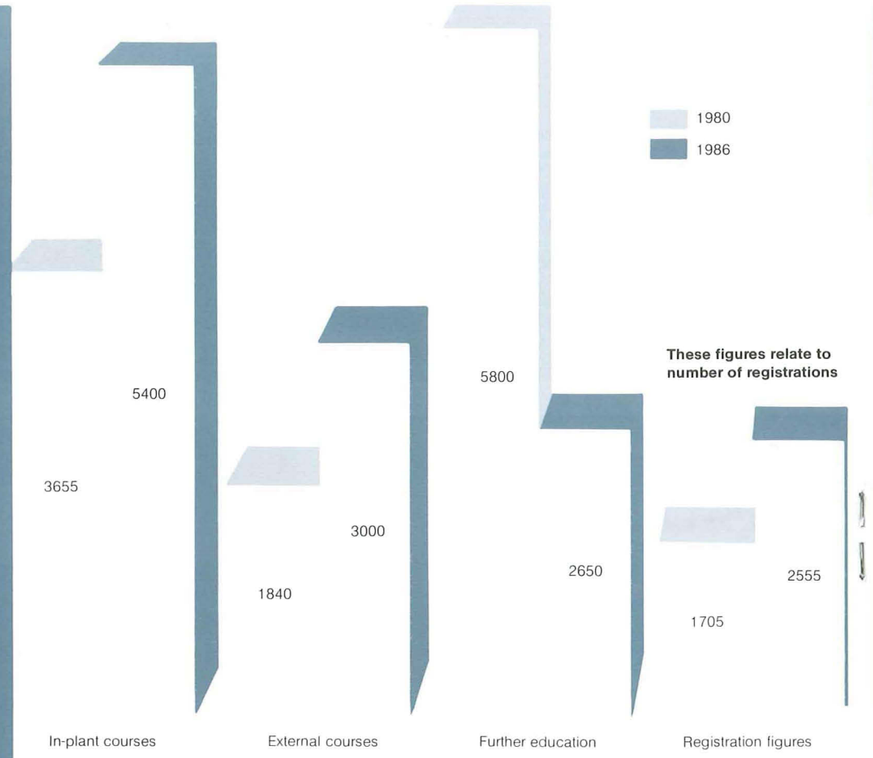
so it can be seen that all employees are candidates for training whatever their role and irrespective of its extent.

Adults spend the bulk of their time at their place of work and it is here, under the control of their supervisor, that they develop. Managers and supervisors are encouraged and trained to use the work itself as the key tool for developing their staff. The place of the training course is, therefore, either to provide information not available on the job or to enhance individuals' development through concentrated attention on specific aspects away from the place of work. On average -

- **Some 1% of adult time is spent receiving off-the-job training.**

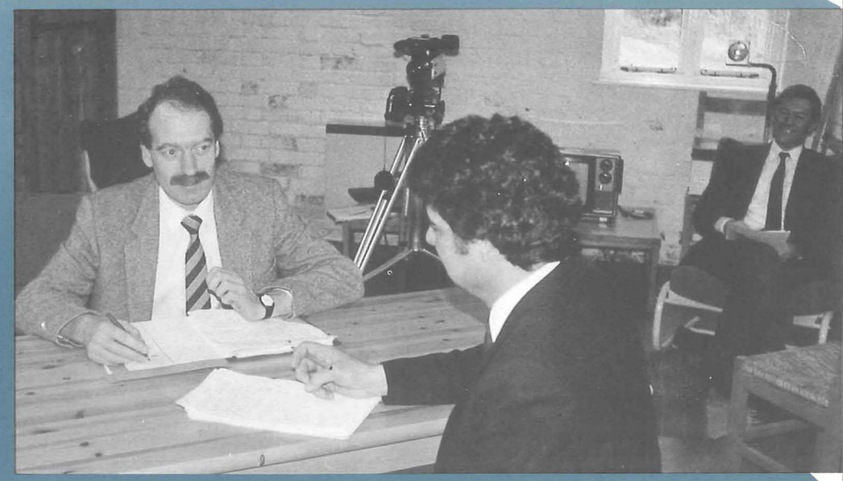
This total is now more widely shared across a larger number of employees than half a decade ago. The diagram opposite shows the growing importance of the short in-plant course which means that not only are more people accessing training but that the training they receive has been more carefully tailored to meet local Company needs.

These figures relate to number of training days in the various categories



These figures relate to number of registrations

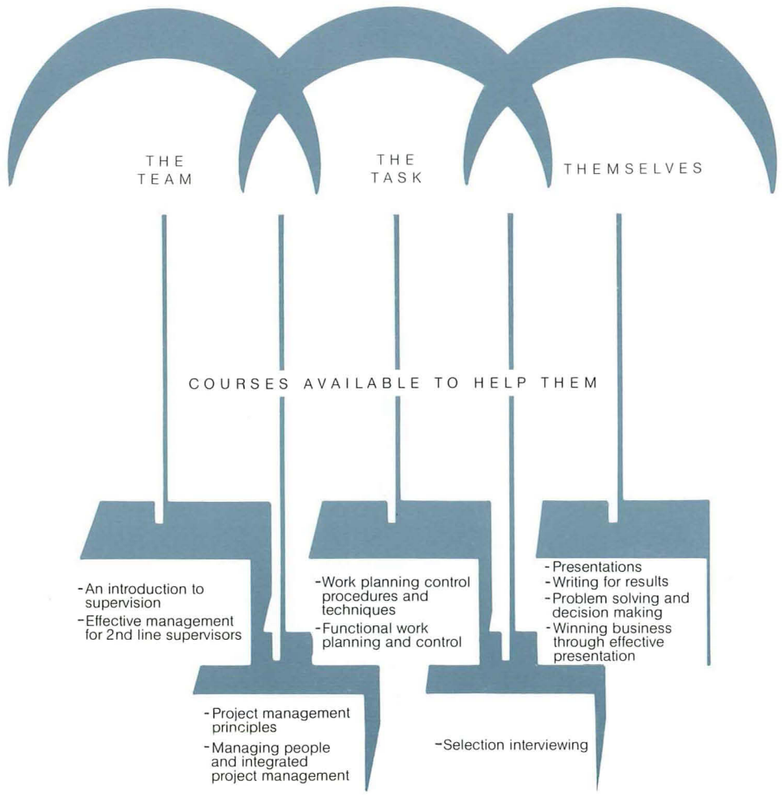
Adult training places great emphasis on active methods such as the role play situation seen here, which simulates work based situations. The video recorder is used to help review learning points.



All 'people' type courses held at GEC Management College, Dunchurch include outdoor learning activities. Here we see a manager meeting new challenges.

Continuing training is responsible for meeting the needs of all adult employees but concentrates attention on the development of technological expertise and supervisory management skills.

Managers Need Training to Manage:



MANAGEMENT TRAINING

Our aim is to develop managers' awareness and skills in terms of their responsibilities for THE TEAM, THE TASK, and THEMSELVES. The diagram opposite shows the relationship between these three responsibilities and the in-plant courses we provide.

The venues for training will depend on the nature of the course. Here we see a syndicate preparing for a training exercise at Bore Place, a working farm and training centre, the venue of Performance Appraisal Workshops.

TECHNOLOGICAL TRAINING

CONTINUING TECHNOLOGICAL TRAINING

WITHIN DISCIPLINE

SOFTWARE FOR SOFTWARE ENGINEERS

PROJECT MANAGEMENT

- How to manage software projects
- Software design and control

PROGRAMMING LANGUAGES

- Introduction to Ada engineering
- Using the Ada language
- Ada Workshop
- CORAL
- PASCAL

HARDWARE FOR HARDWARE ENGINEERS

- Fundamentals of microprocessor engineering
- Design techniques for modern logic devices (proposed)

SPECIALIST TOPICS

- Introduction to Occam and transputer engineering
- Underwater acoustics and sonar systems (proposed)
- Motorola MC68000 microprocessor
- Motorola MC68020 microprocessor
- Introduction to defence NATO item naming and classification

ACROSS DISCIPLINE

SOFTWARE FOR VARIOUS BACKGROUNDS

- Microprocessor assembly code programming
- Software conversion course

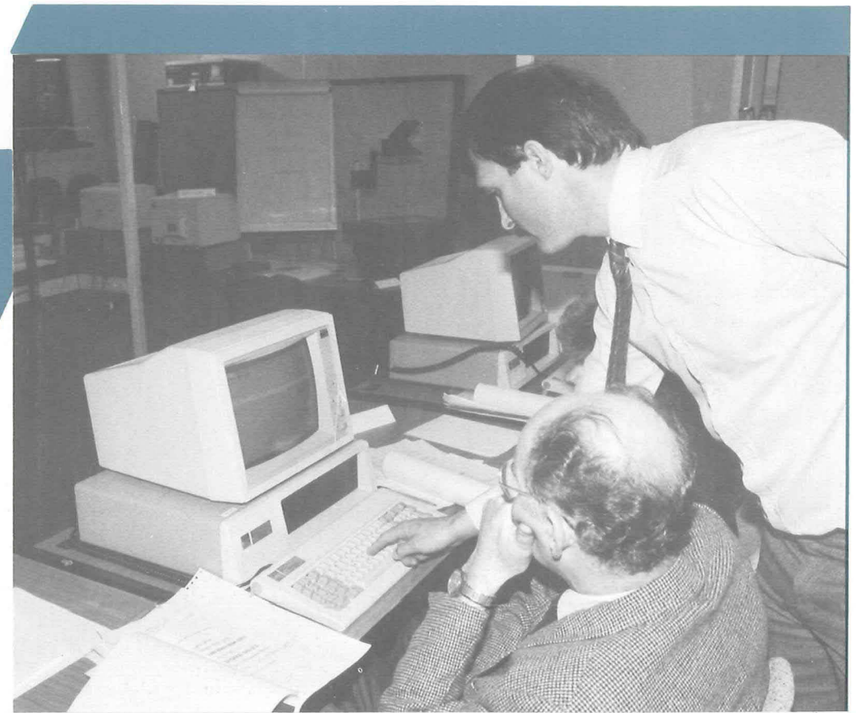
HARDWARE FOR SOFTWARE ENGINEERS

- Digital hardware appreciation
- Microprocessor engineering for programmers

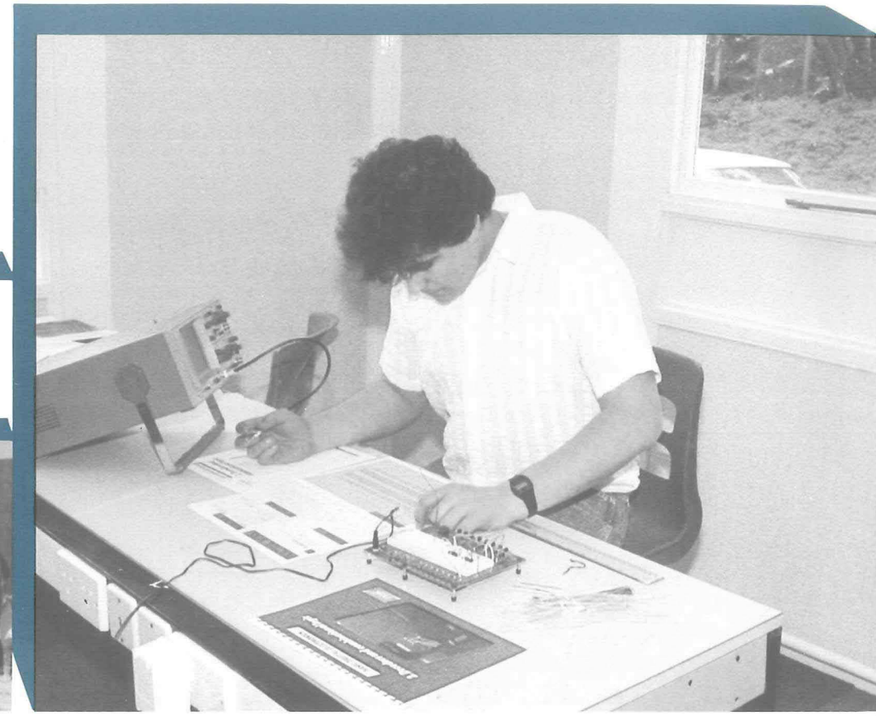
- Introduction to avionics

Up-to-date technological knowledge is as important to our business as the latest materials and components we buy to manufacture our products. This cannot always be easily acquired by engineers as they work on current projects, so it is essential that more formal and efficient ways of keeping them up-to-date are made available. The diagram above outlines some in-plant courses provided to do this.

A prime feature of technological courses is the practical experience which is gained from the taught theory. Pictured opposite is the IBM PC network at Hopewell Drive which is used for a variety of training activities.



The use of Open Learning techniques for technological training means that training can be carried out at a time, place and pace which is convenient to employees and Company. The photograph opposite, shows a trainee carrying out practical work on a McMillan Intek digital electronics module.



The technological training function has established strong links with local colleges and universities. Shown below is a graduate software trainee from Bromley College receiving her course certificate from the College Principal.

CHANGING DIRECTION: The role of retraining

As the nature of the business and products develop so the need for skills and knowledge shifts. This means not only providing training for new recruits and those in their current post but also retraining existing employees for different roles.

The **Software Conversion Course** takes people from various functions and provides college and divisionally based training to convert them to software engineers.

The **Wiring Retraining Course** provides on and off-the-job training to convert unskilled operatives to skilled wiremen.

GRADUATES: Our future professionals

We recruit large numbers of graduates each year on the basis that given appropriate training and experience they will contribute quickly to the performance of the business.

All graduates in the first few weeks of employment attend a **Graduate Induction Course** of up to five days duration. This is to help their assimilation into the Company and to present the nature of our business and gives the opportunity of meeting fellow graduates.

Engineers will then go into divisions to work on current projects with training being tailored to individual needs on and off-the-job.

For the commercial and purchasing functions the **Graduate Commercial Scheme** runs over one year. This is a company wide scheme including on-job training placements and off-the-job courses. The similarly styled **Graduate Production Scheme** is designed to prepare science based graduates for the production function.

Each year a number of graduates are recruited from science based degrees onto the **Software Conversion Scheme** which includes a course run by Bromley College followed by on-job training in divisions. On completion, trainees join divisions as software engineers.

RESOURCES FOR YOUR TRAINING NEEDS

SPACE AND FACILITIES

The training offices are located at the Airport Works with plans to build an open learning facility including an off-the-job study room.

The Training Centre at Hopewell Drive, Chatham consists of Electronic, Bench and Machine training areas as well as a Design Appreciation and four other classrooms. One room is equipped with 14 BBC Computers. These facilities are used for student technologist, apprentice and YTS training. There is also a room equipped with 9 IBM personal computers including two UNICAD work stations, which is being used for both initial and continuing training.

The management training facility is also located at Hopewell Drive and is equipped with video and film facilities.

DIVISIONAL CONTRIBUTIONS

The Training Department receives considerable assistance from divisions. One of the largest commitments is the provision of approximately 280 on-the-job placements for trainees on our various initial training schemes. Another major contribution is made by managers who act as speakers on several continuing training courses - these inputs on topics such as project managment and company products provide a vital link between course theory and Company practice.

A recent successful venture was the running of Graduate Induction Courses by engineers from several divisions.

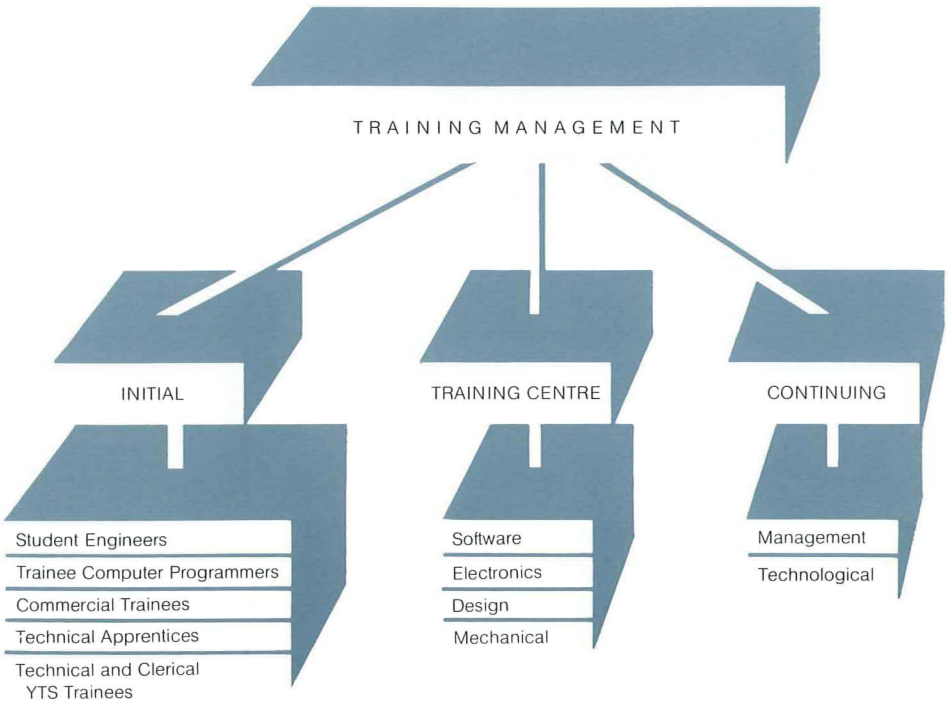
Further support is given at the design stage of most courses and in their subsequent development. Courses and schemes also evolve and develop as a direct result of feedback received from course members.

EXTERNAL SUBCONTRACTORS

The breadth and variety of training demanded and the speed with which it changes inevitably makes it necessary for us to augment our own resources by drawing on the services of numerous subcontractors. This enables us to utilise the resources of valuable specialists and to maximise the range and amount of training provided. External providers range from further education institutions including universities and polytechnics to private consultants. These include the GEC Management College, Bromley College of Technology and Mid- Kent College of Higher and Further Education.

Staff

The Training Department's 23 Training Officers and Instructors and 10 supporting staff are arranged in the following way to reflect its current provision:-



GEC AVIONICS

GEC Avionics Limited

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1983 MARITIME AIRCRAFT SYSTEMS DIVISION

1983

1985 AIRBORNE DISPLAY DIVISION

Designed by ASRD Graphics. Printed in England

PL6813

YOUR COMMENTS PLEASE: our means of fitting the training to your needs

As you can see we are keen to maintain a flow of information from our 'customers' regarding training provision and needs. Could you please complete and return this form to the Training Department, Rochester with your comments.

1) Comments on current training provision

2) What other training do you feel there is currently a need for and why?

3) What training do you believe we will need to provide in the future and why?

THANK YOU FOR YOUR COMMENTS

Your name

Your division

Training Staff Responsibilities

Training Manager

David Perry

Initial Training

Student Engineers

Andrew Parker

Trainee Computer Programmers
Commercial Trainees
Technical Apprentices

Derek Harvey
Nicola Anyan
Paul Broadbent
Andrew Munn

Technical and Clerical
YTS Trainees

Noel Beby
Derek Davis

Education and Training Officer

Ernie Free

Continuing Training

Management

Richard Hale
Katie Wightwick

Technological

John Rees
Anne Claydon

Training Centre

Barry Wallington

Software

Philip Barham
Mark Holloway

Electronics

John Meers
Derek Nicholls
Hugh McArthur

Design

John Elliott

Mechanical

John Griffin
Graham Bicker

GEC AVIONICS

Internal Communication

To R. TELFORD
ENG.

From G D Perry

Your ref
Our ref 295/698/GDP/SD
Date 6 May 1987

Subject **Open Day Brochure**

I enclose a copy of the brochure which was produced to accompany the Training Departments Open Day on 28th April 1987. Although you were unable to be with us, I hope this copy will indicate to you what we were able to present to our visitors.

G D Perry

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