SEMINICS

Seminars for the Electronics Industry

Two SEMINARS

for New Purchasing Staff

or Lay Personnel

Semiconductors

–

Passive and Electromechanical Components

Current Trends in Technology, Usage & Markets

Presented by:

ipi international planning information aps

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DECISION & Etudes Conseil

Company-Private Seminars
Tailored for New Purchasing Staff or for Personnel without a Technical Background

Semiconductors - Integrated Circuits or "Active Components" - in the form of Memories, Microprocessors, Digital Signal Processors, ASICs are at the heart of your products and a more in-depth knowledge of the manufacturing processes, the different product families and their use, the suppliers and the current and prospective market conditions is crucial for your young Buyers and strengthens their negotiating capabilities vis-a-vis your suppliers .

Passive & Electromechanical (P&E) Components have not generated as much interest as Integrated Circuits until recently as they are less "exciting" as their technologies are much simpler, their functions less complex and their costs, in general, much lower.

The explosive increase in complexity of new technologies, the reduction in size of the equipment and the sheer volumes involved, are now pushing the materials, technologies, requirements and characteristics of P&E Components to new limits. In addition some specilised components are becoming scarce.

Passive & Electromechanical Components have suddenly become just as interesting and just as much **Strategic Commodities** as ICs have been for long. **It is now equally important for your Purchasers to get a thorough understanding of these markets too**.

The Object

Purpose of the Seminars

For Purchasing Staff

These two seminars, **"Semiconductors"** and **"Passive & Electromechanical Components"**, cover the trends in **technologies**, **applications** and **markets** of the respective technologies.

They are designed for **newly recruited Purchasing staff, *or young technicians***, to make clear the interrelation between the components being used, the products they go into, the technical advantages or limitations of competing technologies, the suppliers, the prices/costs and the market .

The Seminars will provide these employees with a **basis for more knowledgeable negotiation** with suppliers.

For Staff with Limited or No Technical Background

Version for **non-technical employees**.

The technical awareness and effectiveness of your **administrative, legal, financial, sales,** etc. personnel can be greatly enhanced by exposing them to the products being used or made by your Company.

If your general staff knows how the various components are made, how they work, where they are used and why, and why they cost what they do, they can better understand the overall importance of their own job and the implications of decisions taken by Technical staff.

Company-Private Seminars

These Courses are designed to be presented to your staff at your own premises.

In contrast to a public Seminar this provides you with a more targetted presentation - adapted to your requirements, at a convenient time.

It allows more members of your staff to participate, it gives you a substantial improvement in "value-for-money" and a great reduction in travel expenses.

It also gives your staff more freedom to ask questions which they might not find appropriate to ask in a public forum.

Seminar Duration

The maximum duration of each Seminar, based on the Programmes described below and overleaf is **two days**. Reduced versions can be presented in **one-day sessions**.

A COMBINATION of the Semiconductors and Passive & Electromechanical Components Seminars can be presented over Two or Four days

The Programme

Semiconductors

Basic IC Concepts

Explanation of the basic theory of Semiconductors and ICs and examples.

The Making of an IC

Showing of **" Silicon Run "** a video film prepared by SEMI - Semiconductor Equipment and Materials Institute - which shows all the steps that go into the production of an IC.

IC Families

The different technologies and families of ICs are described in this section.

Participants learn about Analog and Digital ICs and about Standard Logic, Microprocessors, Memories, Programmable Logic, DSPs, Micro Core, Embedded ICs and other types of products.

The different types of microprocessors, memories, programmable logic, etc. are described and comparative explanations are given of the most appropriate applications for the different technologies - *or - why a particular circuit is best used in a particular end product.*

Design Methods

The complex process of designing an IC is explained. Participants learn about the steps involved in the successful design of an IC, the different choices available, the costs and timing involved, the design rules and the relationship with the different types of suppliers.

IC Manufacturing Process

In this section attendees learn where and how the IC is made, tested and assembled - step by step.

Manufacturing Costs

Looks in detail at the costs involved in the setting up of Wafer Fab *(the basic manufacturing facility)* and of manufacturing and testing the IC itself. Examples of cost computations are shown.

IC Market Trends

After an analysis of the current and forecast markets for the applications (end-products) and trends in the usage of different types of ICs, participants learn about the market trends for each IC family. The major suppliers of ICs are listed and commented upon.

Intellectual Property - IP

Given the current trends in IC design one of the most important aspects facing manufacturers and users is that of Intellectual Property. Participants learn about the different types of IP, how to create and how to protect an IP on a worldwide basis.

Passive & Electromechanical Components

Industry Framework & Trends

Provides an introduction to the developments in the Electronics industry worldwide and in Europe in particular. Describes the trends in Equipment production and trends in Components

General Technology Trends

Looks at the technological development of new applications, the equipments and components that go into them.

Technology trends of **P&E Components** and the inherent costs are analysed in particular.

Participants learn about new standards, regulations, specifications, characteristics, changing requirements and technical constraints.

Technology Issues by Component Family

A detailed discussion of the current state and future evolution of technologies which have a considerable impact on the product and market trends: - ***materials, formats, characteristics, prices, etc.*** is presented for each of the following component families:

Capacitors, Resistors, Magnetic Windings, Printed Circuit Boards, Piezoelectric Components, Connectors, Relays and Multi-Chip-Modules.

Applications and Markets

The current market situation and market size for each of the above **P&E Component** families is described and forecasts of the evolution of markets and prices are given.

These forecasts are also provided by application sector: **Consumer Equipment, Data Processing, Telecommunications, Industrial Electronics, Automotive and Avionics/Defence.**

Top Companies Worldwide

Presentation, listing and comments on the **Top-5 or Top-10 major Suppliers** - by P&E Component family.

- Semiconductors -

Technology, Usage & Market Trends

Detailed Programme

1. Setting the Stage

2. Basic IC Concepts

1. Basic Materials
2. Transistors
3. IC Technologies
4. Moore's Law
5. SIA NTRS
6. IC Examples

3. The Making of an IC

Video Film **" Silicon Run "**

4. IC Families

1. **Analog ICs**
   - Description & Usage
2. **Logic Ics**
   - Description & Usage
   1. Standard Logic
   2. Microprocessors
   3. Peripherals
   4. Memories
   5. Gate Arrays
   6. FPGAs
   7. Cell Arrays
   8. Micro Core
   9. Embedded ICs
   10. Custom Circuits
   11. DSPs
3. **Mixed Circuits**
   - Description & Usage

5. Design Methods

1. Logic Synthesis
2. Micro Core
3. Simulation
4. Architecture
5. Timing
6. Test Program Generation
7. Tooling
8. Design Costs
9. NRE
10. Relations With Suppliers
11. Design Rules
12. Waferless Fabs

Questions

6. IC Manufacturing Process

1. Wafer Fabs
2. Clean Rooms
3. Chemical & Environment Safety
4. Wafer Sizes
5. **Manufacturing Steps:**
   Wafer Preparation - Thermal Oxidation
   Photolithography - Etching - Diffusion
   Ion Implantation - Deposition - Planarization
6. **Tests:** *Parametric Test - Wafer Probe - Burn-in Test - Final Test*
7. Defects - Yield
8. **Assembly Steps:**
   Cutting - Placement - Bonding - Molding
9. Packaging Types - Trends
10. Component Tests

7. Manufacturing Costs

1. Investments in Wafer Fabs
2. Investments in Packaging
3. Circuit Size
4. Process
5. Geometry
6. Defect Rates
7. Wafer Costs
8. Die Manufacturing Cost
9. Packaging Costs
10. Test Costs
11. Semiconductor Industry Cycles
12. Examples of Cost Computation

8. IC Market Trends

1. **Application Trends by IC Family and Product Sector**
2. **Market Trends by IC Family**
3. **The Market Leaders**
4. **Geographic Distribution**
5. **Future Trends**

9. Intellectual Property - IP

1. **Principles of IP - Types of IP**
   Patents - Designs - Copyright - Circuit Layout
2. **Steps to Create an IP**
3. **Strategies to Protect IP Rights**
4. **Scopes of Protection**
5. **International Aspects**

Summary and Final Questions

– Passive & Electromechanical Components –

Technology, Usage & Market Trends

1. Industry Framework & Trends

World and Europe - Basic Data

- Electronics Industry:
- Trends in Equipment production

- Electronic Component Markets and Trends

2. General Technology Trends

of Equipments and Components

1. Towards **Hyperfrequencies**
2. **Voice - Data - Image:**
   Increasing Data Rates & New Applications
3. **Growing Functional Complexity:** Wireless, etc.
4. **Nomadism**
5. **Pervasion:** Electronic content in all equipment and all applications is in steady growth
6. **Standards**
7. **EMC/ Screening**
8. **Power Management**
9. **Reliability, Quality, Data Assurance**
10. **Technical Constraints**: Temperatures, Voltages, Impedances, Accuracy, Stability, etc..)
11. **Miniaturization Requirements**
12. **Densification**
13. **Cost of the Passive Function**

3. Technology Issues by Component Family

Discussion of the current state and possible evolution of technologies which have a considerable impact on component, product and market trends:
- materials, formats, characteristics, prices, etc.

1. **Capacitors**
   Film: Polypropylene, Polyester and others
   Aluminium: SMD and others
   Ceramic: Multi-layer and others
   Tantalum: by Format Family- A, B, C.
2. **Resistors**
   Linear: SMD - Networks
3. **Magnetic Windings**
   Transformers
   Inductances: SMD - Integrated - Embedded
   RLC Networks
4. **Printed Circuit Boards (PCB)**
   Analysis of PCB technology & structure trends.
   Impact on Passive Component requirements.
   - Influence of the Semiconductor.
   - Increasing density of Multi-layer Boards.
   - Integration of the Passive Function in theIC, and/or the PCB, and/or the MCM.

   1. **Single-Sided** 2. **Double-Sided**
   3. **Multi-Layer, others**
5. **Piezoelectric Components**
   1. **Ceramic** 2. **Quartz** 3. **VCO**
6. **Connectors**
   Concentrating of Connectors for use in Automotive, GSM and Decoder Applications
7. **Relays**
   Emphasis on Connectors for use in Automotive Applications
8. **MCM - Multi-Chip-Modules**
   - MCMs
   - Power Hybrids
   - Opto - Hybrids
   - Microwave Circuits - SAW
   - Resistive Networks

4. Applications and Markets:

By Component

- **Capacitor**
- **Resistors**
- **Windings**
- **PCBs**
- **Piezoelectrics**
- **Connectors**
- **Relays**
- **MCMs**

By Application

- **Consumer Equipment**
- **Data Processing**
- **Telecommunications**
- **Avionics and Defence**
- **Automotive**
- **Industrial Electronics**

The presentation highlights the most significant and dynamic applications impacting Passive Components. It also takes into consideration such factors as:

- mass and niche markets,
- application/client specific and general purpose components
- economic life of the components, etc.

5. Top Companies Worldwide

Listing and comments on the Top-5 or Top-10 major Suppliers - by Component Family

General Conditions

Company-Private Seminars

TheSeminars, **"Semiconductors"** and **"Passive & Electromechanical Components"**, are presented for your staff exclusively, at your Company's premises or a location selected by yourself.

For **two-day seminars** the presentations will include the full programmes described in this document.

If you prefer a **one-day** duration you can choose which sections are to be treated in more depth and which ones, if any, may be excluded.

Combination Seminar

An excellent view of the overall Components environment is obtained by choosing a two-day "Combination Seminar" with one day dedicated to Semiconductors and one to Passive Components.

Target Audience

The Seminars can be tailored to the needs of either **Purchasing Staff** or **Non-Technical Personnel**.

Deliverables

Each attendee will receive a document with the presentation material

Language

Seminars can be presented in **English** or in **French**.

Equipment Requirements

PowerPoint PC-projector, VCR (PAL)

Price

Two-Day Seminars: **Euro 16,850** for up to 15 attendees

- Thereafter **Euro 290** for each additional attendee.

One-Day Seminars: **Euro 9,800** for up to 15 attendees

- Thereafter **Euro 255** for each additional attendee.

Best results are achieved with groups of up to 20 attendees

Other

In addition the **Company will be invoiced for all travel and accommodation expenses** incurred by the instructors in relation to the Seminars. *Under normal circumstances there will be one instructor for a one-day seminar and two instructors for a two-day seminar.*

Should the Seminars be held at venues other than the Company's facilities, the Company will be responsible for the corresponding costs involved.

The Instructors

Seifeddine BENNACEUR

Mr. Bennaceur works closely with DECISION Consult as their external expert on Telecommunications and Information Technology.

Mr. Bennaceur is the managing director of SB Conseil, a consulting company specialised in new technology industrial project evaluation, that he founded in 1987.

From 1979 to 1986 Seifeddine Bennaceur was strategic planning and development manager at Telemecanique, now part of the Schneider Group, where he was primarily involved in the area of Local Networks.

He was also responsible for the introduction of ASICs and other Programmable Logic into Telemecanique and for the training and instruction of staff in the definition, design and application of these components.

Prior to that, between 1972 and 1979, he was a senior analyst at the New Technologies Department of BIPE, Bureau d'Investigations et de Previsions Economiques.

Seifeddine BENNACEUR graduated from the prestigious Ecole Polytechnique in Paris in 1967 and received a second engineering degree from the Ecole des Mines de Paris in 1968.

Marc VODOVAR

Mr. Vodovar heads the Microelectronics and Semiconductors Group at DECISION Consult.

Marc Vodovar has held a number of senior positions in Market Research & Marketing in the High Tech industry.

Before joining DECISION Consult, Mr. Vodovar was in charge of European Market Intelligence at BMC Software with the responsibility of preparing the company for entry into e-business.

Previous to that, at Texas Instruments, he was the Worldwide Business Intelligence Manager for the Semiconductor Division for 6 years, and was active in developing the strategies for the reengineering of the company into a successful leader in DSP and Analog devices.

During his period at TI Mr. Vodovar was in charge of instructing new staff in TI France and Europe about the Semiconductor market and adapted a number of TI's training programmes for European conditions. In addition he worked on the French version of a training course intended to prepare TI staff for the restructuring of the company.

Marc Vodovar holds Master degrees in Mathematics and Economics. He is a graduate from the Institut d'Etudes Politiques de Paris.

Jacques LORRE

Mr. Lorre is the head of the Electronic Components Group at DECISION and is the Director of DECISION's European Passive Components Service.

Jacques Lorre was head of the Economic Studies Department of Philips Components from 1986 to 1991 and manager for Marketing - Southern Europe, at MOTOROLA Semiconductors from 1979 to 1986.

Before joining MOTOROLA, Mr. Lorre was a consultant and project manager for components at BIPE, Bureau d'Investigations et de Previsions Economiques.

Jacques Lorre holds the Diploma of Engineering from the INSA (France) 1965 and the IAE (France) 1966.

SEMINICS

Seminars for the Electronics Industry

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About the Organisers

DECISION - Is an independent Paris-based consultancy which, since 1991, offers strategic consulting and conducts technical and economic surveys in the fields of **Electronics, Electrical Energy** and **Defence/Aerospace**. Its strong team of in-house consultants and its network of associated experts provides thorough coverage of European, American and Asian markets.

DECISION Etudes & Conseil is a member of the **Europartners Consultants** group.

IPI - International Planning Information - Since 1981 one of the major European distributors of international strategic, technical and market information and knowledge for the electronics industry.

Enquiry Form

I am interested in the following Seminars:

- **"Semiconductors"** [ ] **Two-day** Seminar [ ] **One-day** Seminar
- **"Passive and Electromechanical Components"** [ ] **Two-day** Seminar [ ] **One-day** Seminar
- **"Combination Seminar"** [ ] **Two-day** Seminar [ ] **Four-day** Seminar

Possible Time Periods: _____

Probable Locations: _____

Please contact me to discuss details.

NAME _____

POSITION _____

COMPANY _____

STREET _____

CITY

COUNTRY _____

TELEPHONE _____ **TELEFAX** _____

E-MAIL _____

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