

Curs 1

2015/2016

Dispozitive și circuite de microunde pentru radiocomunicații

Disciplina 2015/2016

- 2C/1L, DCMR (CDM)
- **Minim 7 prezente (curs+laborator)**
- Curs - **sl. Radu Damian**
 - Marti 18-20, P2
 - E – 60% din nota
 - probleme + (**? 1 subiect teorie**) + (2p prez. curs)
 - 3p=+0.5p
 - **toate materialele permise**
- Laborator – **sl. Radu Damian**
 - Miercuri 8-14 impar (14.10.2015 – prez. obligatorie)
 - L – 25% din nota
 - P – 15% din nota

Documentatie

■ <http://rf-opto.eti.tuiasi.ro>

The screenshot shows the homepage of the RF-OPTO website. At the top, there is a navigation bar with links for Main, Courses, Master, Staff, Research, and Students. Below this is a secondary navigation bar with links for Microwave CD, Optical Communications, Optoelectronics, Internet, Practica, and Networks. The main content area features a banner with the text "RF-OPTO" and the University of Technology logo. Below the banner, there is a section titled "Optical Communications" with a sub-section for "Course: CO (2014-2015)". This section includes details about the course coordinator, code, discipline type, credits, and enrollment year. There are also sections for "Activities", "Evaluation", "Grades", and "Attendance". The "Attendance" section indicates "Not yet". The "Materials" section contains links for "Raze de lumina slides", "Fibre optice slides", and "LED". The footer of the page includes links for "Aggregate Results", "Attendance", "Grades", and "Course Slides".

http://rf-opto.eti.tuiasi.ro/optical_comm.php eti.tuiasi.ro Laboratorul de Microunde s... ro.wikipedia.org

ETI RF-OPTO UNIVERSITATEA TEHNICA "DINISCU ROMANESCU" IASI

English | Romana

Main Courses Master Staff Research Students

Microwave CD Optical Communications Optoelectronics Internet Practica Networks

Optical Communications

Course: CO (2014-2015)

Course Coordinator: Prof. Dr. Irinel Casian Botez
Code: DOS410T
Discipline Type: DOS; Alternative, Specialty
Credits: 4
Enrollment Year: 4, Sem. 7

Activities

Course: Instructor: Prof. Dr. Irinel Casian Botez, 3 Hours/Week, Specialization Section, Timetable:
Laboratory: Instructor: Assist.P. Dr. Petre-Daniel Matasaru, 1 Hours/Week, Half Group, Timetable:

Evaluation

Type: Cologiu

A: 70%, (Test/Colloquium)
B: 30%, (Seminary/Laboratory/Project Activity)

Grades

[Aggregate Results](#)

Attendance

Not yet

Materials

Course Slides

[Raze de lumina slides](#) (pdf, 232.99 KB, ro,)
[Fibre optice slides](#) (pdf, 902.07 KB, ro,)
[LED](#) (pdf, 664.51 KB, ro,)

Documentatie

- RF-OPTO
 - <http://rf-opto.eti.tuiasi.ro>
- Fotografie
 - de trimis prin email: rdamian@etti.tuiasi.ro
 - necesara la laborator/curs

Fotografii

Studentii care au trimis fotografiile 📸

Grupa: 5402

Grupa: 5403

Grupa: 5404

Grupa: 5405

Nr.	Nume
1	APETRII MARIA

Nr.	Nume
1	ALEXANDRESCU SEBASTIAN

Nr.	Nume
1	APERGHIS MIHAI-ALIN

Nr.	Nume
1	ANGHELUS MARIL

Studentii care **inca** nu au trimis fotografiile 📸

Grupa: 5304

Grupa: 5402

Grupa: 5403

Grupa: 5404

Nr.	Nume

Nr.	Nume

Nr.	Nume

Nr.	Nume

Fotografii

FLORESCU DAN-CONSTANȚĂ



Date:

Grupa	5405 (2008)
Specializarea	Tehnologii si sisteme
Marca	3275

Note obtinute

Disciplina	Tip	Data	Descriere	Nota	Obiectiv
DCMR Dispozitive si circuite de microunde pentru radiocomunicații					
	Nota	19/06/2009	Nota finală	10	
	Exam	19/06/2009	Examen DCMR	9	
	Tema	05/06/2009	Proiect DCMR	10	

FLORESCU DAN-CONSTANȚĂ



Date:

Grupa	5405 (2008)
Specializarea	Tehnologii si sisteme
Marca	3275

Detalii

Finanțare	Buget
Bursa	Bursa de Studii
Domiciliu	Iasi, judet Iasi
Promovare	Promovare Integrala
Credite	60
Media	8.86

Fotografii

http://if-opto.eti.tuiasi.ro/presenza.php?act=153&nru=14&ext_supliz=26

Start Didactic Master Colectiv Cercetare Studenti Admin

Note Lista Studenti Fotografi Statistici

Grupa 5403

Nr.	Student	Prezent	Nr.	Student	Prezent	Nr.	Student	Prezent
1	ANGHELUS IONUT-MARCUS		<input type="checkbox"/> Prezent	2	ANTIGHIN FLORIN-RAZVAN	 Fotografia nu exista	<input type="checkbox"/> Prezent	<input type="checkbox"/> Prezent
		Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>			Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>			Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>
		Nota: 0			Nota: 0			Nota: 0
		Obs: <input type="text"/>			Obs: <input type="text"/>			Obs: <input type="text"/>
4	APOSTOL PAVEL-MANUEL	 Fotografia nu exista	<input type="checkbox"/> Prezent	5	BALASCA TUDIAN-PETRU	 Fotografia nu exista	<input checked="" type="checkbox"/> Prezent	<input type="checkbox"/> Prezent
		Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>			Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>			Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>
		Nota: 0			Nota: 0			Nota: 0
		Obs: <input type="text"/>			Obs: <input type="text"/>			Obs: <input type="text"/>
7	BOTEZAT EMANUEL		<input type="checkbox"/> Prezent	8	BUTUNOI GEORGE-MADALIN	 Fotografia nu exista	<input type="checkbox"/> Prezent	<input type="checkbox"/> Prezent
		Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>			Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>			Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>
		Nota: 0			Nota: 0			Nota: 0
		Obs: <input type="text"/>			Obs: <input type="text"/>			Obs: <input type="text"/>
10	CHIRITOIU CATERINA		<input type="checkbox"/> Prezent	11	CODOC MARIUS		<input checked="" type="checkbox"/> Prezent	<input type="checkbox"/> Prezent
		Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>			Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>			Puncte: 0 <input type="button" value="+"/> <input type="button" value="-"/>
		Nota: 0			Nota: 0			Nota: 0
		Obs: <input type="text"/>			Obs: <input type="text"/>			Obs: <input type="text"/>

Nr. Student

Prezent

2 ANTIGHIN
FLORIN-RAZVAN

Prezent

Fotografia
nu exista

Puncte: 0

Nota: 0

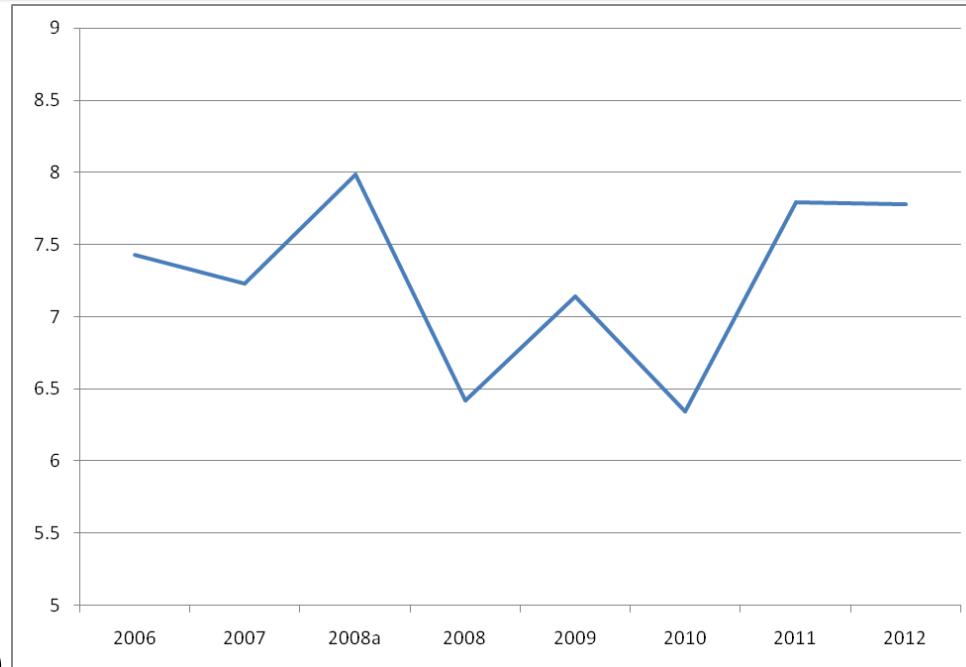
Obs:

MOTTO

- “Universitatea nu e pentru mase locul de unde emana cunoasterea, ci un obstacol intre individ si diploma pe care i-a harazit-o destinul”
- “Universitatea fiind ceva care se interpune in mod imoral intre individ si dreptul lui natural de a fi diplomat, individul are obligatia morala sa triumfe asupra universitatii prin orice mijloace”
 - Sursa citat: Internet, user: “un student batran si plesuv”

Examen

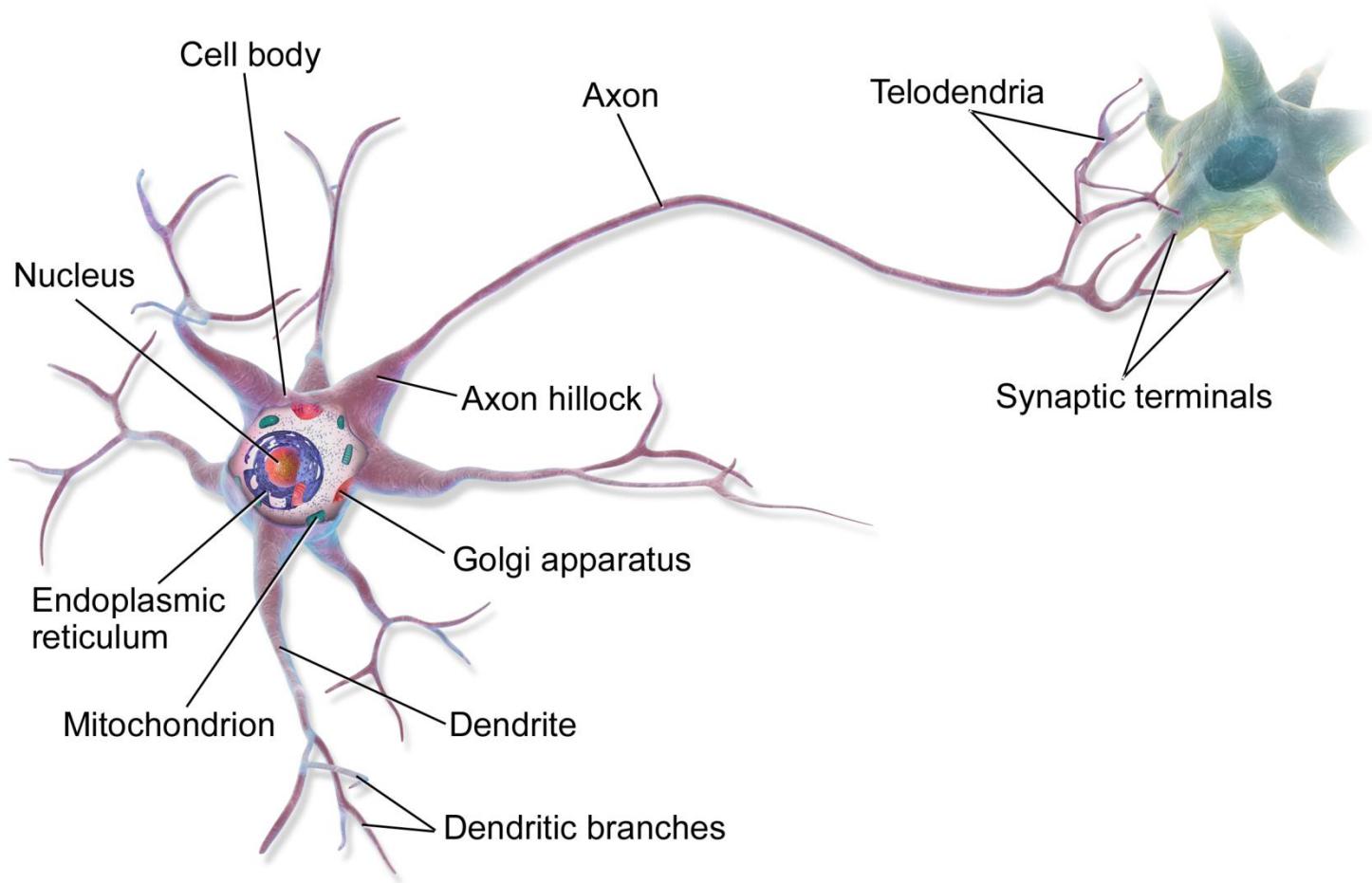
- subiecte individuale
- Note
 - 2006: 7.43
 - 2007: 7.23
 - 2008: 7.98
 - 2008: 6.42
 - 2009: 7.14
 - 2010: 6.34
 - 2011: 7.79
 - 2012: 7.77
- La prima aplicare (neanuntata)
 - 50% din studenti au parasit examenul in primele 10 minute
 - 50% din cei ramasi nu au promovat
 - promovabilitate totala 25%, rata contestatiilor: 0%
- Urmatoarele examinari (anuntate)
 - rata contestatiilor: 0%



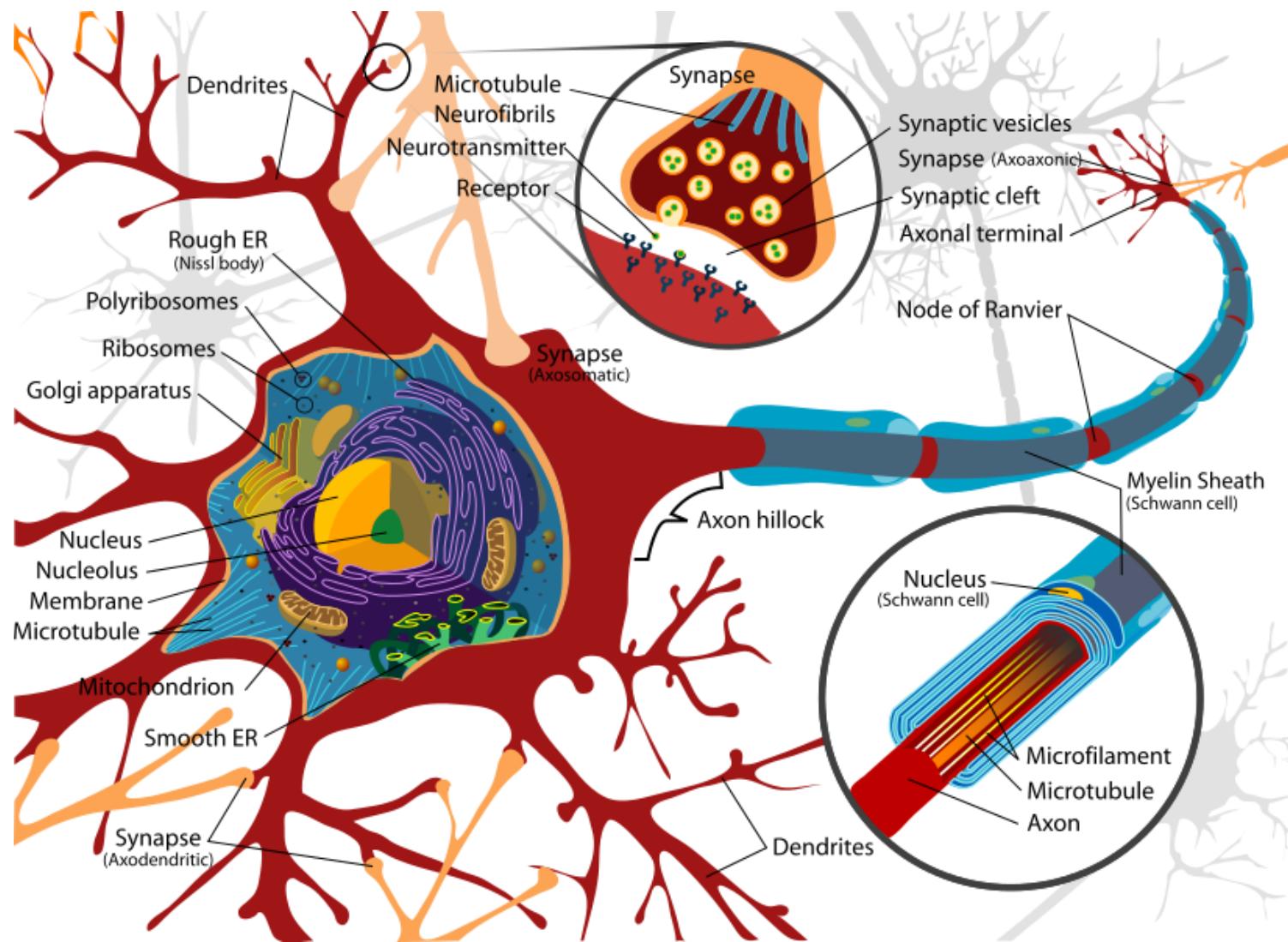
Examen



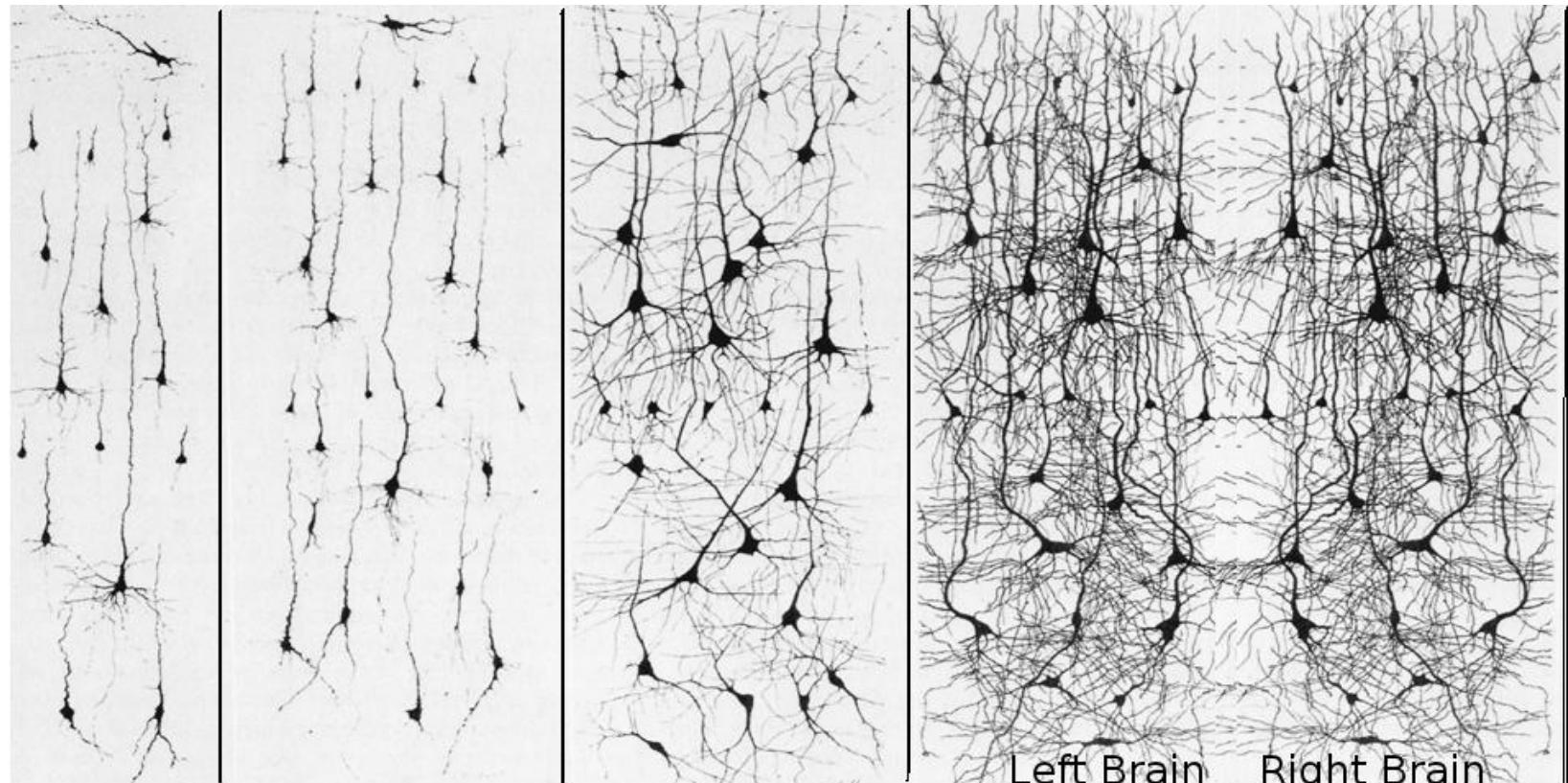
Scop 1



Scop 2



Scop 3



Age 1+
Infant·
birth

7+
Child·
(Stimulation and Growth)

13+
Teen

Left Brain Right Brain
30-60
Adult (Peak)

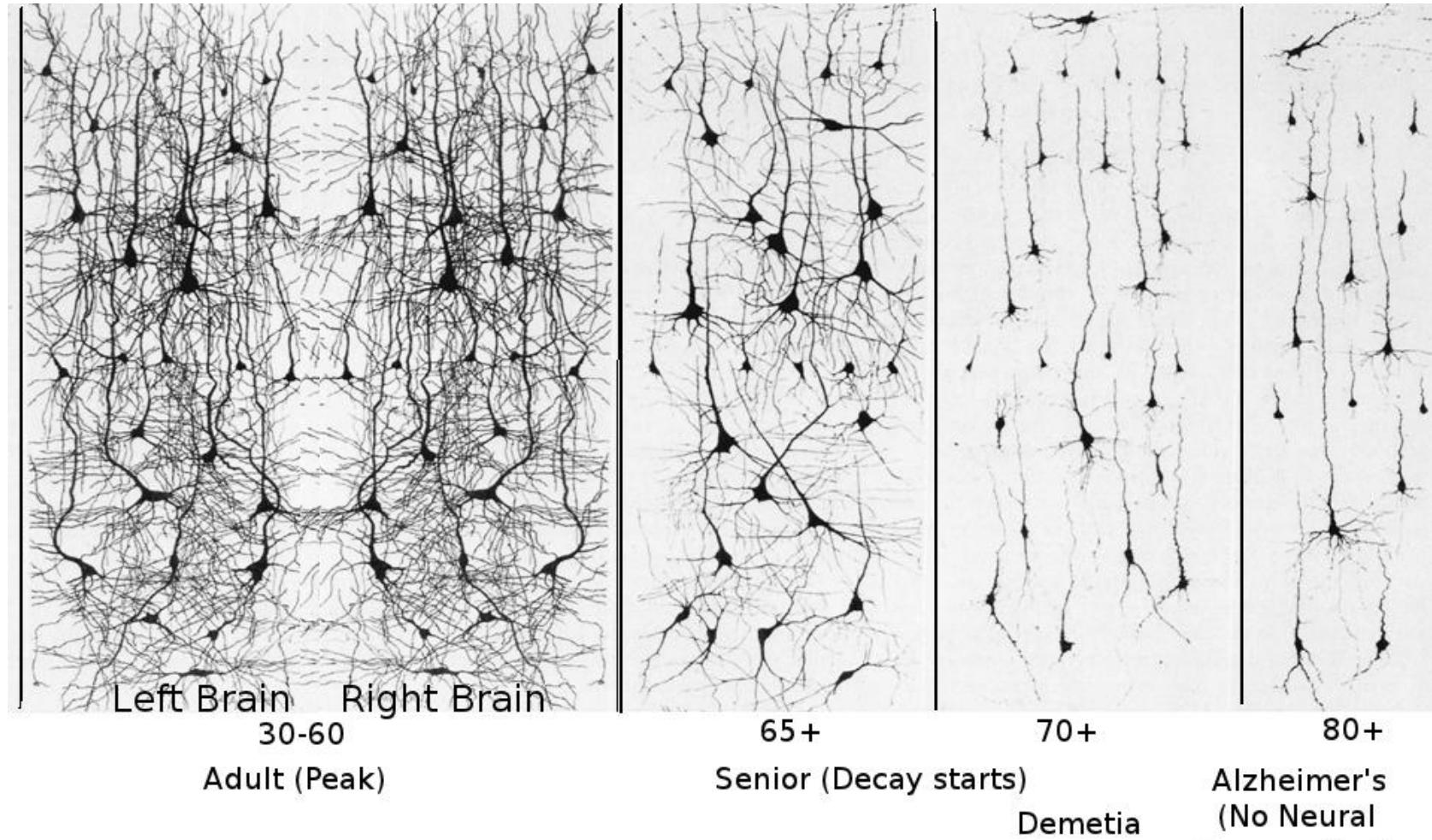
Scop 4



**Sinapse
“inginereşti”**



Termen



Cuprins

- Linii de transmisie
- Adaptarea de impedanță
- Cuploare direcționale
- Divizoare de putere
- Amplificatoare de microunde
- Filtre de microunde
- Oscilatoare de microunde ?

Bibliografie

- <http://rf-opto.eti.tuiasi.ro>
- Irinel Casian-Botez: "Microunde vol. 1: Proiectarea de circuit", Ed. TEHNOPRES, 2008
- David Pozar, Microwave Engineering, Wiley; 4 edition , 2011, ISBN : 978-1-118-29813-8 (E), ISBN : 978-0-470-63155-3 (P)

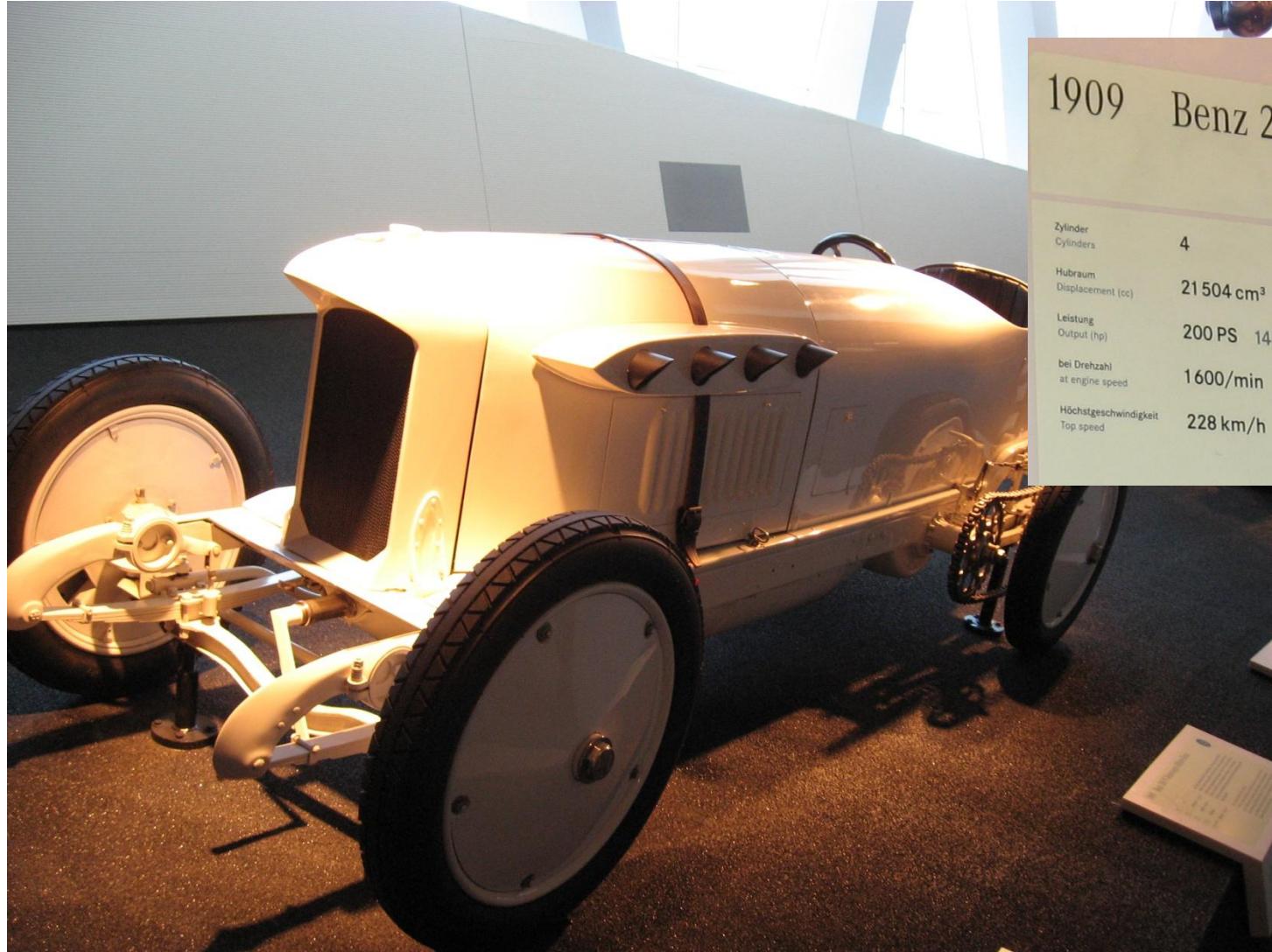
~1930



~1930



1909



1909 Benz 200 PS Rennwagen »Blitzen«

Zylinder Cylinders	4
Hubraum Displacement (cc)	21504 cm ³ 1312 cu in
Leistung Output (hp)	200 PS 147 kW
bei Drehzahl at engine speed	1600/min
Höchstgeschwindigkeit Top speed	228 km/h 142 mph

Der »Blitzen-Benz« ist 1909 der erste 200 km/h fährt. Seine größten Erfolge zylindermotor ausgestattete Rekord-Burman mit 228 km/h über die Saar ist damit das schnellste Fahrzeug jede Eisenbahn.

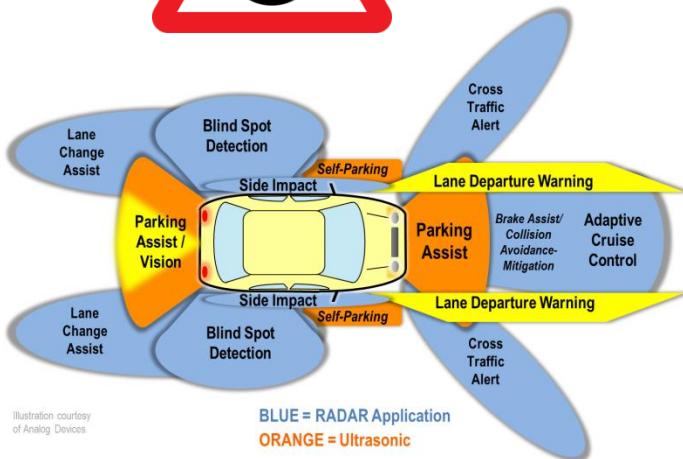
Benz »Lightning Benz« 200 hp racing car
In 1909 the Lightning Benz...

1930-1950

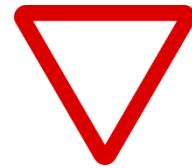


Tehnologie

> 2010



< 1950



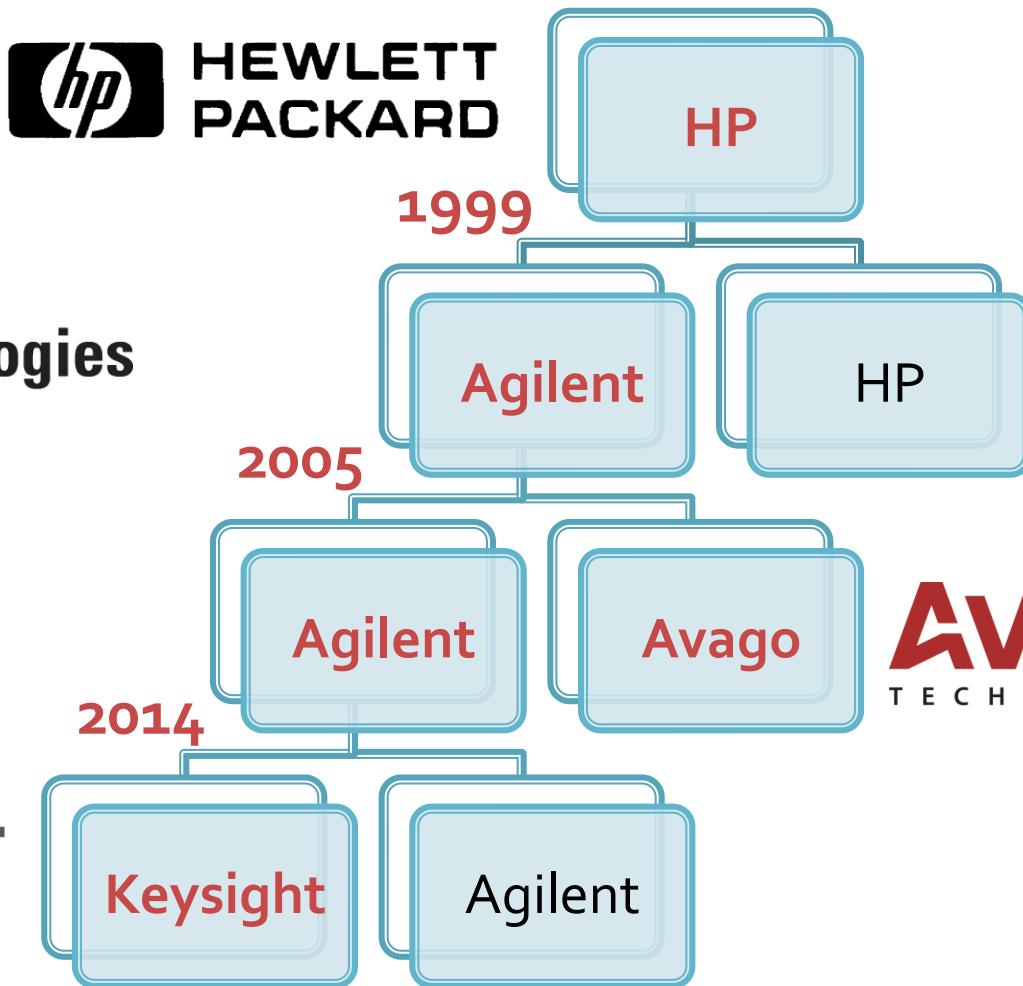
Tehnologie

$1 \times 1 = 1$	$2 \times 1 = 2$	$3 \times 1 = 3$	$4 \times 1 = 4$	$5 \times 1 = 5$
$1 \times 2 = 2$	$2 \times 2 = 4$	$3 \times 2 = 6$	$4 \times 2 = 8$	$5 \times 2 = 10$
$1 \times 3 = 3$	$2 \times 3 = 6$	$3 \times 3 = 9$	$4 \times 3 = 12$	$5 \times 3 = 15$
$1 \times 4 = 4$	$2 \times 4 = 8$	$3 \times 4 = 12$	$4 \times 4 = 16$	$5 \times 4 = 20$
$1 \times 5 = 5$	$2 \times 5 = 10$	$3 \times 5 = 15$	$4 \times 5 = 20$	$5 \times 5 = 25$
$1 \times 6 = 6$	$2 \times 6 = 12$	$3 \times 6 = 18$	$4 \times 6 = 24$	$5 \times 6 = 30$
$1 \times 7 = 7$	$2 \times 7 = 14$	$3 \times 7 = 21$	$4 \times 7 = 28$	$5 \times 7 = 35$
$1 \times 8 = 8$	$2 \times 8 = 16$	$3 \times 8 = 24$	$4 \times 8 = 32$	$5 \times 8 = 40$
$1 \times 9 = 9$	$2 \times 9 = 18$	$3 \times 9 = 27$	$4 \times 9 = 36$	$5 \times 9 = 45$
$1 \times 10 = 10$	$2 \times 10 = 20$	$3 \times 10 = 30$	$4 \times 10 = 40$	$5 \times 10 = 50$
$6 \times 1 = 6$	$7 \times 1 = 7$	$8 \times 1 = 8$	$9 \times 1 = 9$	$10 \times 1 = 10$
$6 \times 2 = 12$	$7 \times 2 = 14$	$8 \times 2 = 16$	$9 \times 2 = 18$	$10 \times 2 = 20$
$6 \times 3 = 18$	$7 \times 3 = 21$	$8 \times 3 = 24$	$9 \times 3 = 27$	$10 \times 3 = 30$
$6 \times 4 = 24$	$7 \times 4 = 28$	$8 \times 4 = 32$	$9 \times 4 = 36$	$10 \times 4 = 40$
$6 \times 5 = 30$	$7 \times 5 = 35$	$8 \times 5 = 45$	$9 \times 5 = 45$	$10 \times 5 = 50$
$6 \times 6 = 36$	$7 \times 6 = 42$	$8 \times 6 = 48$	$9 \times 6 = 54$	$10 \times 6 = 60$
$6 \times 7 = 42$	$7 \times 7 = 49$	$8 \times 7 = 56$	$9 \times 7 = 63$	$10 \times 7 = 70$
$6 \times 8 = 48$	$7 \times 8 = 56$	$8 \times 8 = 64$	$9 \times 8 = 72$	$10 \times 8 = 80$
$6 \times 9 = 54$	$7 \times 9 = 63$	$8 \times 9 = 72$	$9 \times 9 = 81$	$10 \times 9 = 90$
$6 \times 10 = 60$	$7 \times 10 = 70$	$8 \times 10 = 80$	$9 \times 10 = 90$	$10 \times 10 = 100$

2x1 = 2
2x2 = 4
2x3 = 6
2x4 = 8
2x5 = 10
2x6 = 12
2x7 = 14
2x8 = 16
2x9 = 18
2x10 = 20



Agilent Technologies



NPL, Londra



NPL, Londra



Examen

- Operatii cu numere complexe!

Contact

- Laboratorul de microunde si optoelectronica
- <http://rf-opto.etti.tuiasi.ro>
- rdamian@etti.tuiasi.ro