

Proceedings
Enhancement of the Global Perspective for
Engineering Students by Providing an
International Experience

Engineering Conferences International

Year 2003

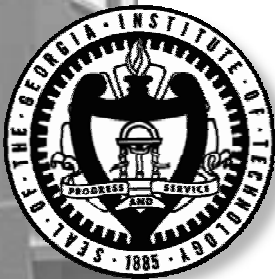
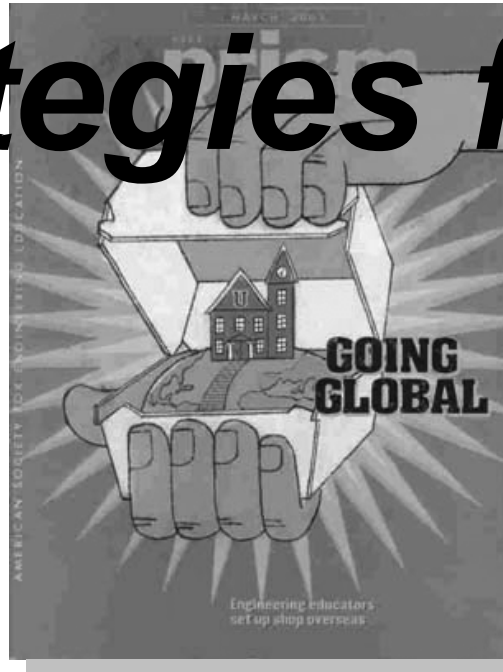
Georgia Tech's Strategies for Global
Engineers

Jack R. Lohmann
Georgia Institute of Technology

Georgia Tech's

Strategies for

***Global
Engineers***



Jack R. Lohmann

Associate Provost

Georgia Institute of Technology

Atlanta, Georgia USA

overview



Georgia Tech



International Efforts



Georgia Tech

Lorraine



Future Plans



Georgia Tech

Georgia Tech profile

*Top 10 U.S. public research
(technological) U*

*Fall '02
enrollments*

Colleges	B.S.	M.S.	Ph.D.	Total	Faculty
Engineering	6,336	1,514	1,654	9,504	341
Computing	1,500	158	260	1,918	56
Management	1,187	278	28	1,493	44
Sciences	860	117	475	1,452	155
Architecture	626	262	58	946	42
Ivan Allen	717	158	60	935	108
(Undeclared)	231			231	
Total	11,457	2,487	2,535	16,479	746

FY '02 degrees

Colleges	B.S.	M.S.	Ph.D.	Total
Engineering	1,231	708	172	2,111
Management	303	125	8	436
Computing	238	61	16	315
Sciences	154	68	54	276
Architecture	130	81	5	216
Ivan Allen	103	73	2	178
Total	2,159	1,116	257	3,532

engineering profile

Largest U.S. producer of engineering graduates

1st in degrees to women and to African-Americans

Largest U.S. voluntary co-op program

Ranked 2nd in engineering R&D

Ranked 3rd in industry sponsored research

Where is Georgia Tech?

Singapore



**The Logistics Institute –
Asia Pacific**
(Est. 1998)

Metz



GT Lorraine
(Est. 1989)

Atlanta



Georgia Tech
(Est. 1885)

Paris



Paris Program
(Est. 1975)



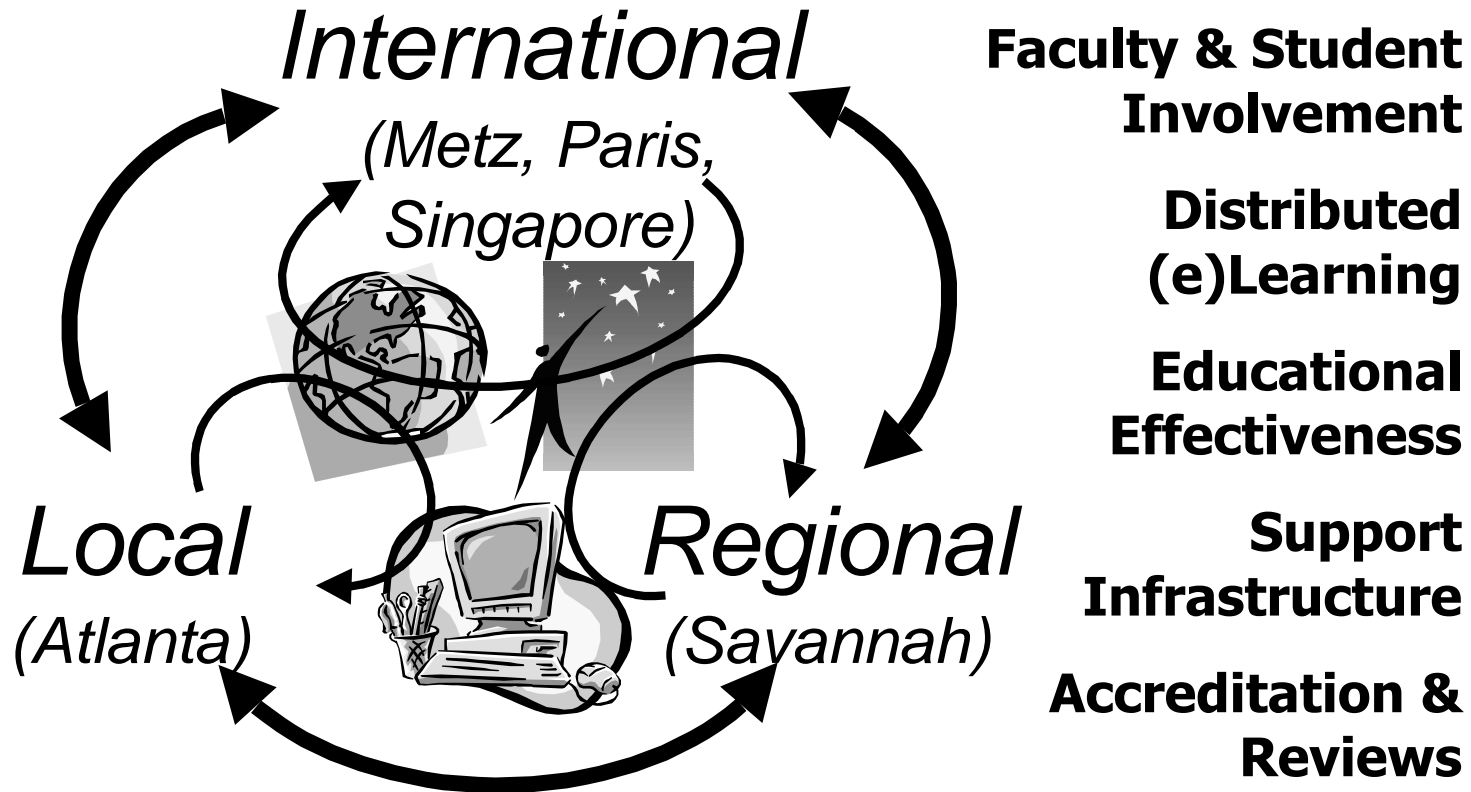
Savannah



**GT Regional
Engineering Program**
(Est. 1998)

**Georgia Institute
of Technology**

(inter)institutional development

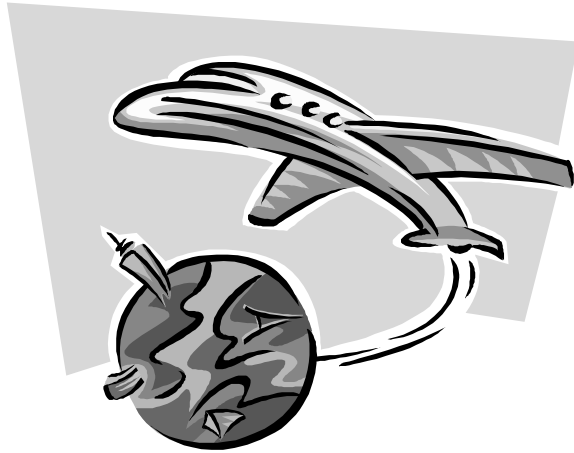


Intentionality (“Value-added”)



International Efforts

types of experiences



Study abroad

*Degree (&internship)
programs*

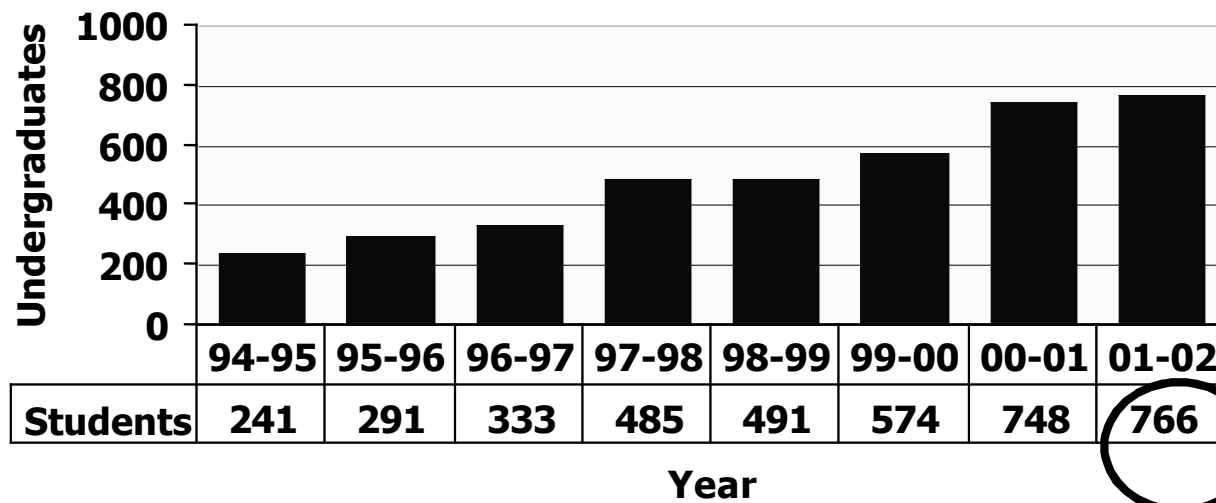
GTL, Paris Program, TLI-AP

Work (internship) abroad

Distance learning

study abroad enrollments

Undergraduate Students Abroad



35.3%
of
undergradua
te degrees
conferred

study abroad programs

Program

● Oxford Summer Program	156	● Brussels Summer Program	23
● GTL Summer Program	104	● Cuba Program	20
● Pacific Study Abroad Program	86	● Political Economy of China	20
● Computing Summer Program in Barcelona	55	● Aerospace Engineering in Russia	15
● Languages for Business and Technology	54	● Modern Architecture and the Modern City	12
● Hong Kong/Singapore Summer Program	40	● Field Work in Animal Behavior	12
● Exchange Programs	29	● Chemical Engineering in London	10
● Non-Georgia Tech Programs	28	● Work Abroad/ International Coop	10
● Architecture Senior Year in Paris	27	● International Architectural Exchange	7
● Summer Study in Italy – Art & Architecture	27	● International Academic Projects	6
● Costa Rica Summer Program	25	● Argentina Summer Program	n/a

Total 766

degree programs

Paris Program

- **Ecole d'Architecture Paris La Villette**
- **Senior Year**
- **L'Atelier Franco-Américain**

The Logistics Institute – Asia Pacific

- **National University of Singapore**
- **Dual Master of Science (NUS & GT)**



Georgia Tech

Lorraine

what is Georgia Tech

Lorraine?

*French non-profit
corporation created in
1989*

*Promotes academic,
research, and economic
development in Georgia,
Lorraine, Europe, and*

USA

“The European Platform of Georgia Tech”



where is GT Lorraine?

Lorraine Region

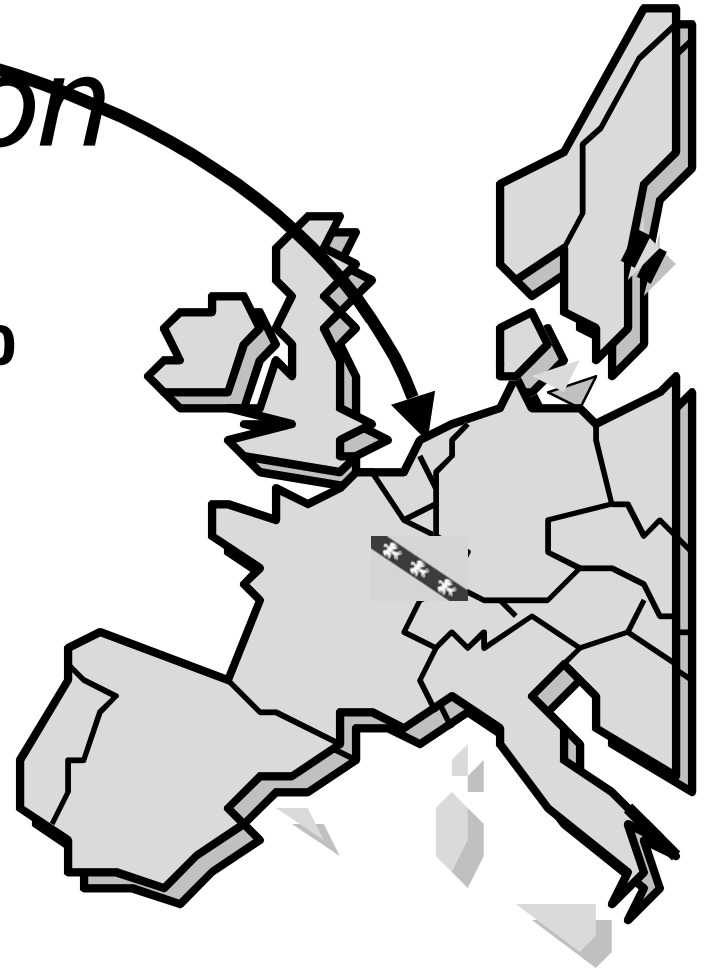
■ **23,500 sq. km, pop. 2,300,000**

■ **4 Departments**

Meurthe et Moselle, Meuse,
□ Moselle, and Vosges

■ **Main Cities: Metz, Nancy**

■ **Sistership Agreement
with State of Georgia, USA**



R&D in Lorraine



Technopôles

Metz 2000 (infor./comm. technologies)

Nancy-Brabois (life sciences, bioengineering)

Universities

Supélec (electrical & computer engineering)

ENSAM (mechanical & industrial engineering)

INPL (broad range of engineering programs)

Université de Metz

Université de Nancy

Research Organizations

CNRS (optical communications systems)

INRIA (comp. engineering, oper. research)

INSERM (life sciences)

GTL facilities

- *50,000 square feet academic and research facility located on Technopôle Metz 2000*
- *Student living centers at Supélec & ENSAM (also at Technopôle)*
- *Four furnished apartments for faculty and families*



key permanent faculty and staff

“A growing number of students realize that an engineering career is **global** and that they need to be properly prepared. As a result, we have had students who were admitted to MIT and Stanford who chose to go to Georgia Tech Lorraine.”

— school president
Hans B. Puttgen

- Dr. Hans Puttgen
- Dr. Francois Malassenet
- Dr. Robert Mahan
- Dr. Bertrand Boussert
- Dr. William Rhodes
- Ms. Marie-Pierre Delaleux
- Ms. Josyane Roschitz
- Ms. Christine Cezard
- M. Jacques Hanet

visiting faculty

Per Term

Typically, 4-6 Georgia Tech (Atlanta) faculty in residence

Live

60 Georgia Tech faculty and their families have been in residence

Virtual

50 Georgia Tech faculty have taught courses via distance learning

main activities, ECE & ME

- 1 *Graduate Programs*
- 2 *Undergraduate Summer Programs**
- 3 *Sponsored Academic Research*
- 4 *GTL-CNRS Telecom Laboratory*
- 5 *Local Economic Development*

academic programs

1

Master of Science (30 SCH, with or without thesis) & Doctor of Philosophy

Electrical and Computer Engineering
Mechanical Engineering

2

Double Degrees

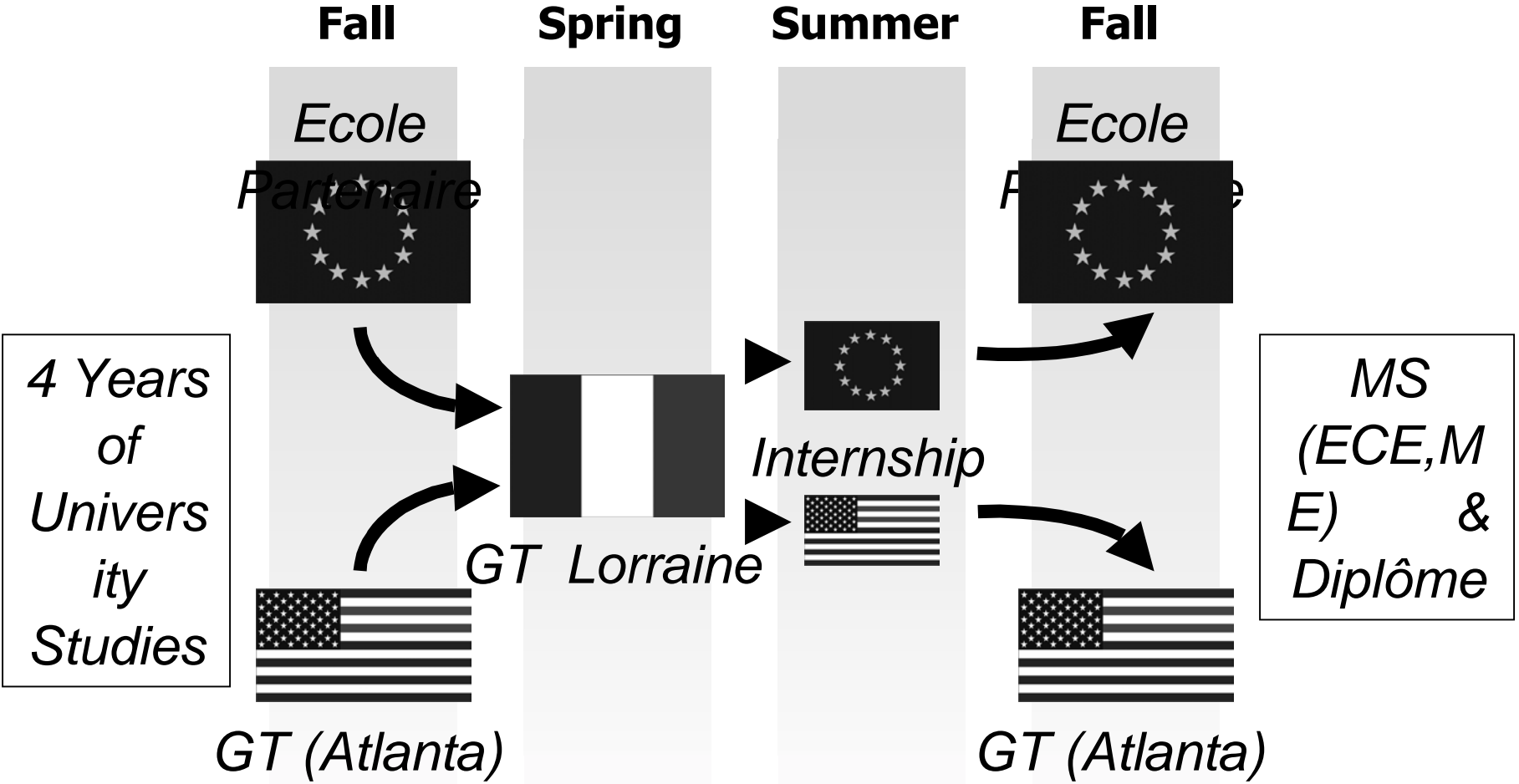
M.S. & Diplôme (ECE, ME)
Ph.D. & Doctorat (ECE)

3

Undergraduate Program

Architecture, ECE, International Affairs, Management, ME

master's double-degree program



academic partners

Supélec (Metz)

Diplôme de Spécialisation en Traitement and Transmission de l'Information

Ecole des Mines de Nantes

Diplôme de Spécialisation en Sécurité de Fonctionnement

Institut National Polytechnique de Lorraine (Nancy)**

Master de l'INPL

Institut National Polytechnique de Toulouse

Diplôme d'Ingénieur de Section Spéciale

Ecole Nationale Supérieure d'Electricité et de ses Applications (Paris)

Diplôme de Spécialisation ENSEA

Université de Technologie de Compiègne**

Diplôme d'Etudes Approfondies UTC

Ecole Nationale d'Arts et Métiers (Metz, Paris)*

Diplôme d'Ingénieur

Certificat de Projet de Fin d'Etudes

Université de Franche-Comté***

Doctorat

**Georgia Institute
of Technology**

* Double-degree with MSME only

** Double-degree with MSME and MSECE, all others with MSECE

*** Double-degree with Ph.D. (ECE)

basic requirements

Meet each institution's requirements

(jointly coordinated)

Meet expected language proficiency

Complete an internship

double-degree benefits

International academic credentials

International professional experience

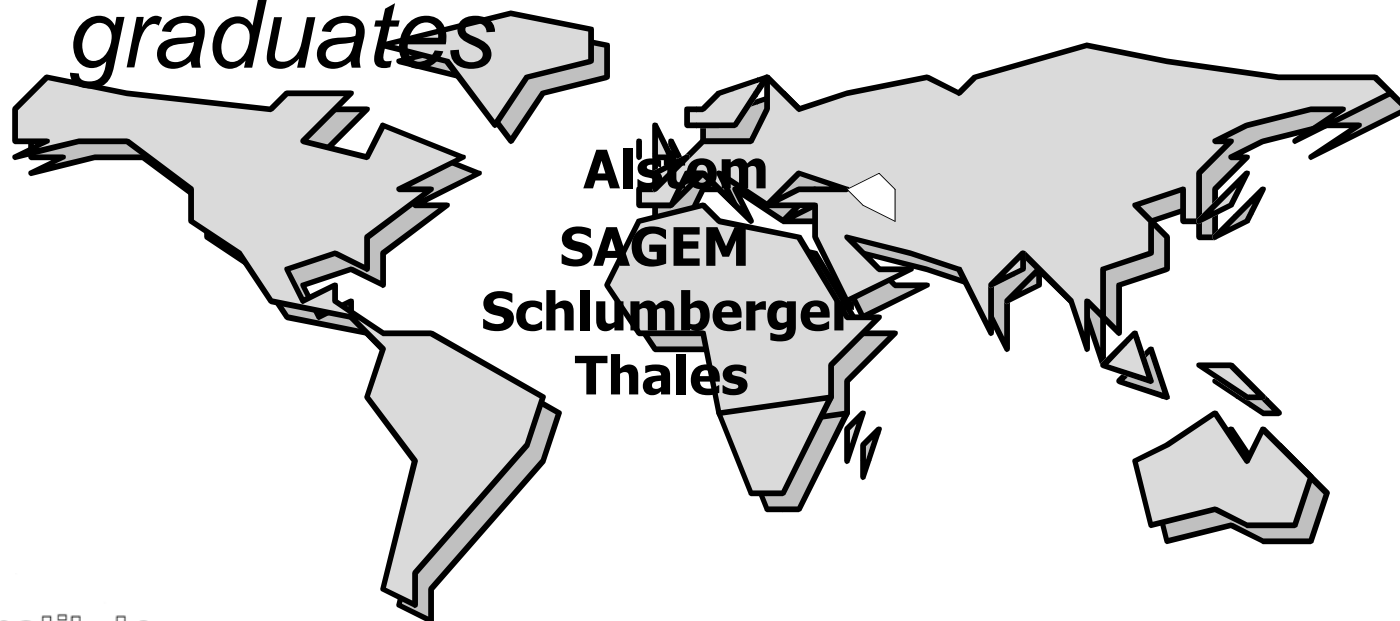
International immersion and language proficiency

employment

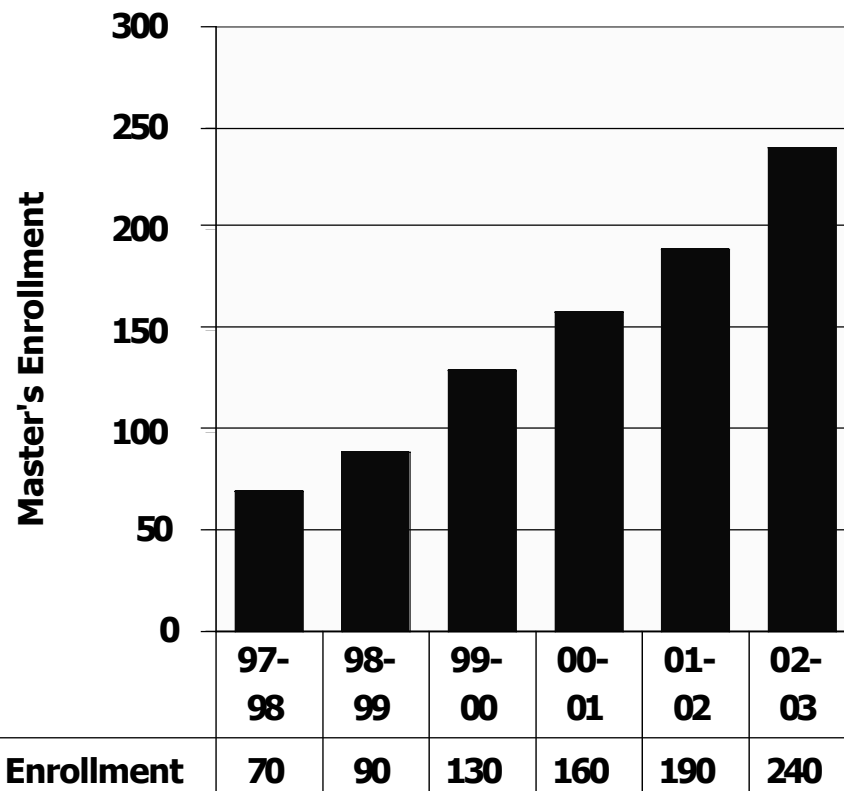
Broad range of industry types

Largest current employers of GTL

graduates

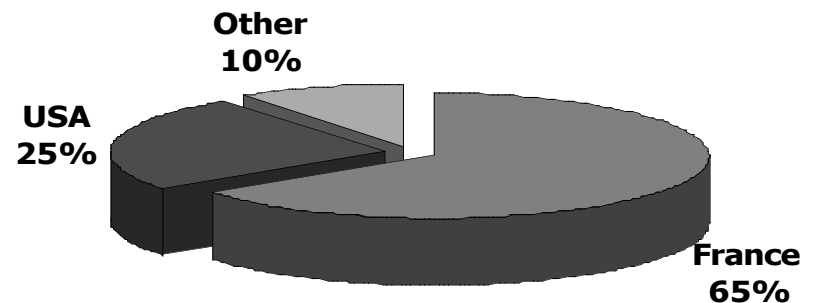


master's enrollments and degrees



*120 GTL
students will
earn their MS
in 2002-03*

Country of Origin



costs



Lorraine

Resident/Term

Tuition/Fees = \$1,824

Room/Board = \$2,220

Total = \$4,044

Non-Resident/Term Tuition/Fees = \$2,199

Room/Board = \$2,220

Total = \$4,419



Atlanta

Resident/Term

Tuition/Fees = \$1,974

Non-Resident/Term

Tuition/Fees = \$6,663



undergraduate program

Began summer 1998; expanding to fall 2003

Georgia Tech courses – e.g., Summer 2003

Civil Engineering – Statics, Dynamics, Strength of Materials

Architecture – Art History

Electrical/Computer Engineering – Circuits, Signals, Design

Economics – Microeconomics, Global Institutions, Entrepreneurial Firms

Modern Language – French

History/Technology – Technology and Society, History of Space

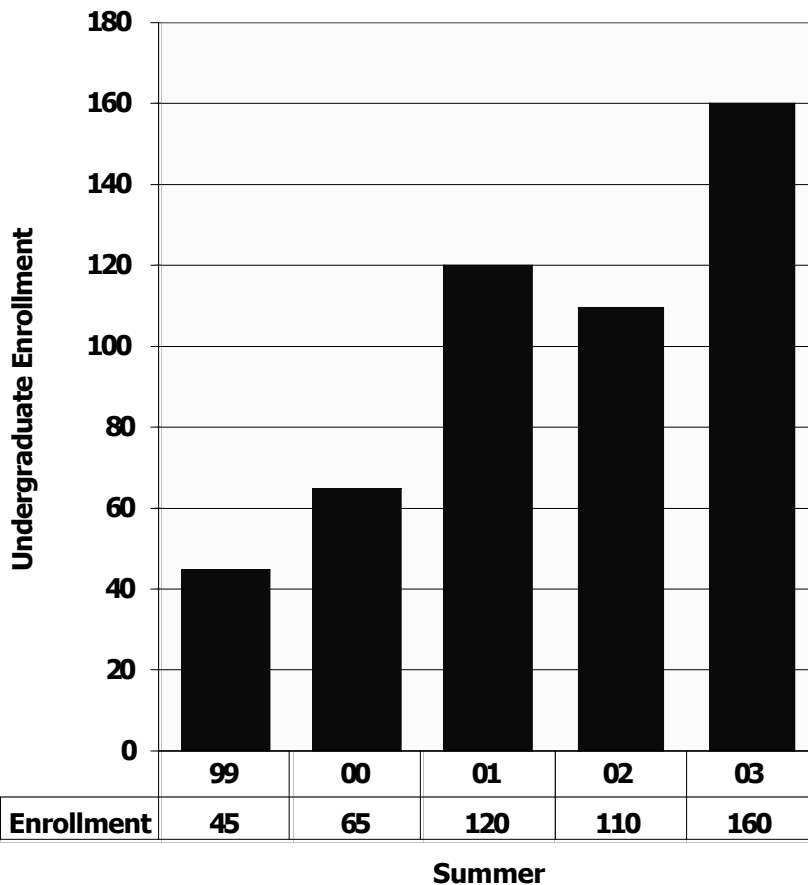
Industrial Engineering – Probability, Statistics, Optimization

Mechanical Engineering – Thermodynamics, Machine Design, Engines

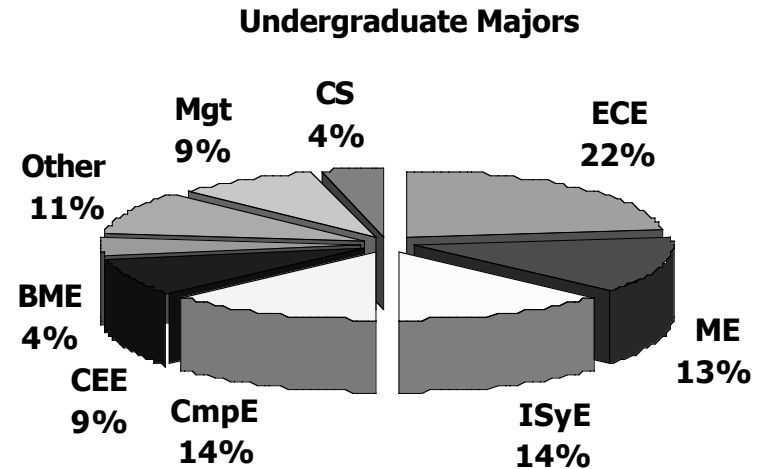
Management – Marketing

Cultural and recreational activities

undergraduate enrollments



*76% are
engineerin
g students*



costs



Lorraine

Resident/Term = \$4,745

Non-Resident/Term = \$4,995



Atlanta

Resident/Term = \$4,501

Non-Resident/Term = \$9,767

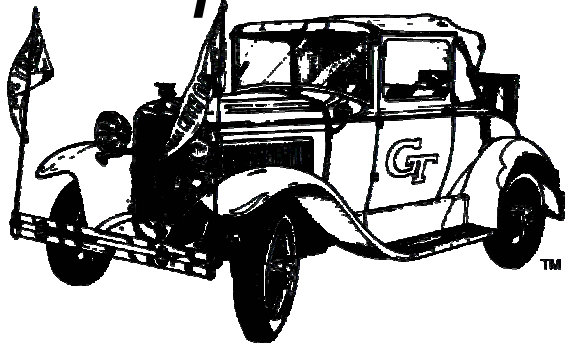




Future Plans

the road ahead

Georgia Tech's strategic goal is to have 50% of its (undergraduate) students graduate with an international experience



GTL's current focus is to have 20% of Georgia Tech BS & MS students graduate having participated in GTL programs

three challenges

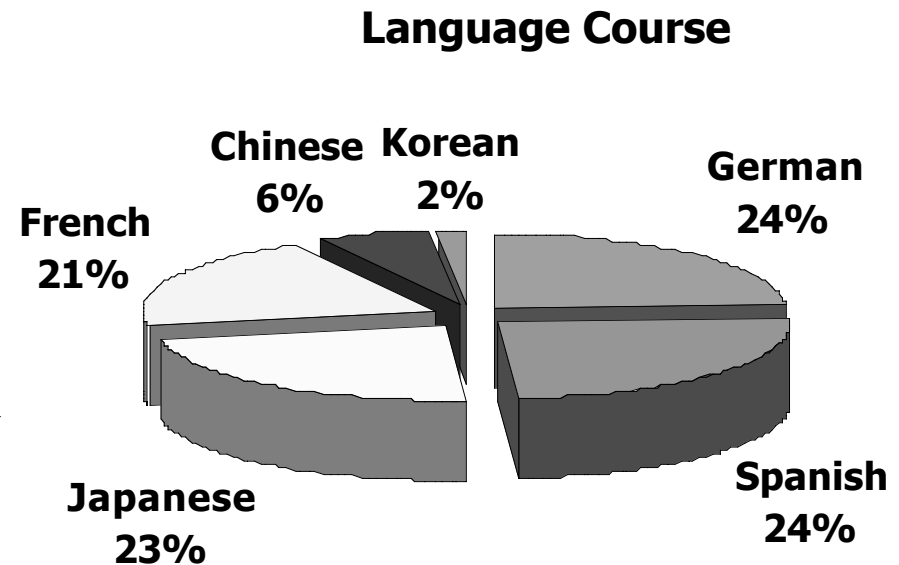
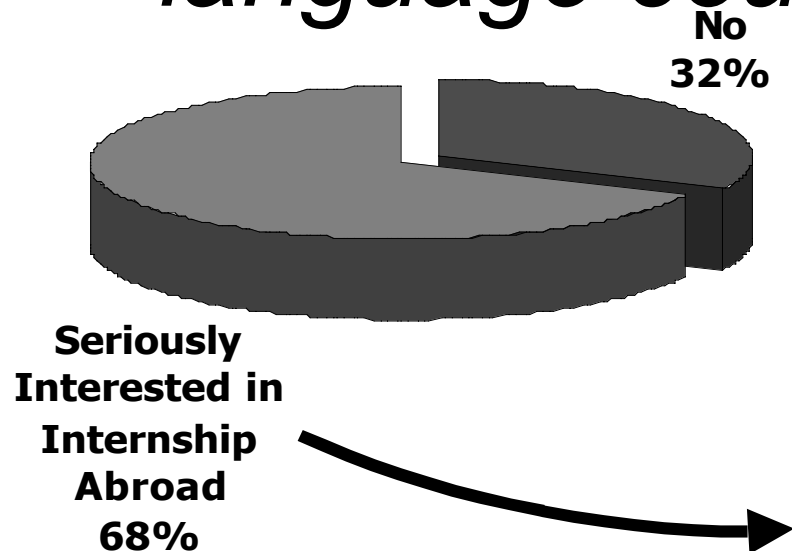
Are students interested?

Will employers hire them?

Are the goals realistic?

are students interested?

*Survey of one-half GT students
enrolled in non-required, foreign
language courses (729 Respondents)*



will employers hire them?

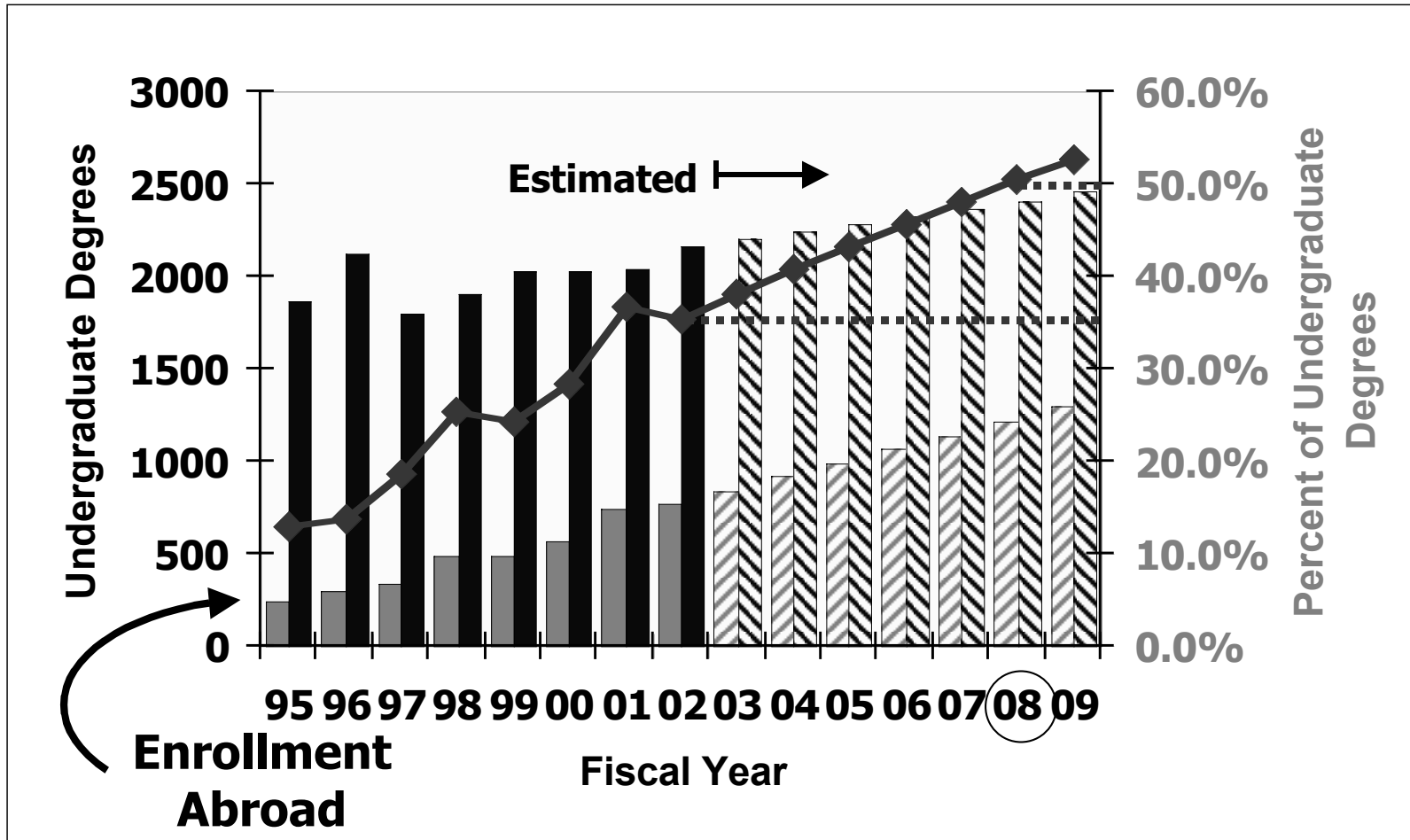
Recent corporate recruiters

- Alstom
- Exxon Mobil
- GE
- Michelin
- Rolls Royce
- SAGEM
- Schlumberger
- Shell
- Siemens
- Thales
- Toyota
- ...

Recent assignments of graduates

- Argentina
- Bahamas
- Belgium
- Brazil
- Chile
- France
- India
- Italy
- Japan
- Mexico
- South Korea
- Switzerland
- Thailand
- ...

can we reach 50%?



can we reach 20% for GTL?

Expand the undergraduate program

Expand the double-degree program

Create a BS/Double-Degree program

back of the envelope calculations

Expand Undergraduate Program													
	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
Undergraduate Enrollment	45	65	120	110	160	190	220	250	280	310	340	370	400
% of BS Degrees	2.4%	3.2%	5.9%	5.4%	7.4%	8.6%	9.8%	10.9%	12.0%	13.1%	14.1%	15.1%	16.0%

Expand Double-Degree Program													
	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
MS/Diplome Enrollment	45	60	120	110	160	190	220	250	280	310	340	370	400
% of MS Degrees	4.7%	6.1%	11.9%	10.2%	14.3%	16.4%	18.4%	20.2%	21.9%	23.5%	25.0%	26.4%	27.7%

Creat BS/Double-Degree Program													
	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
BS Enrollment							25	40	70	110	160	220	290
Double-Degree Enrollment							0	13	33	55	90	135	190
% U.S. D-D Enrollment							25.0%	28.6%	32.8%	36.3%	40.7%	45.0%	49.2%

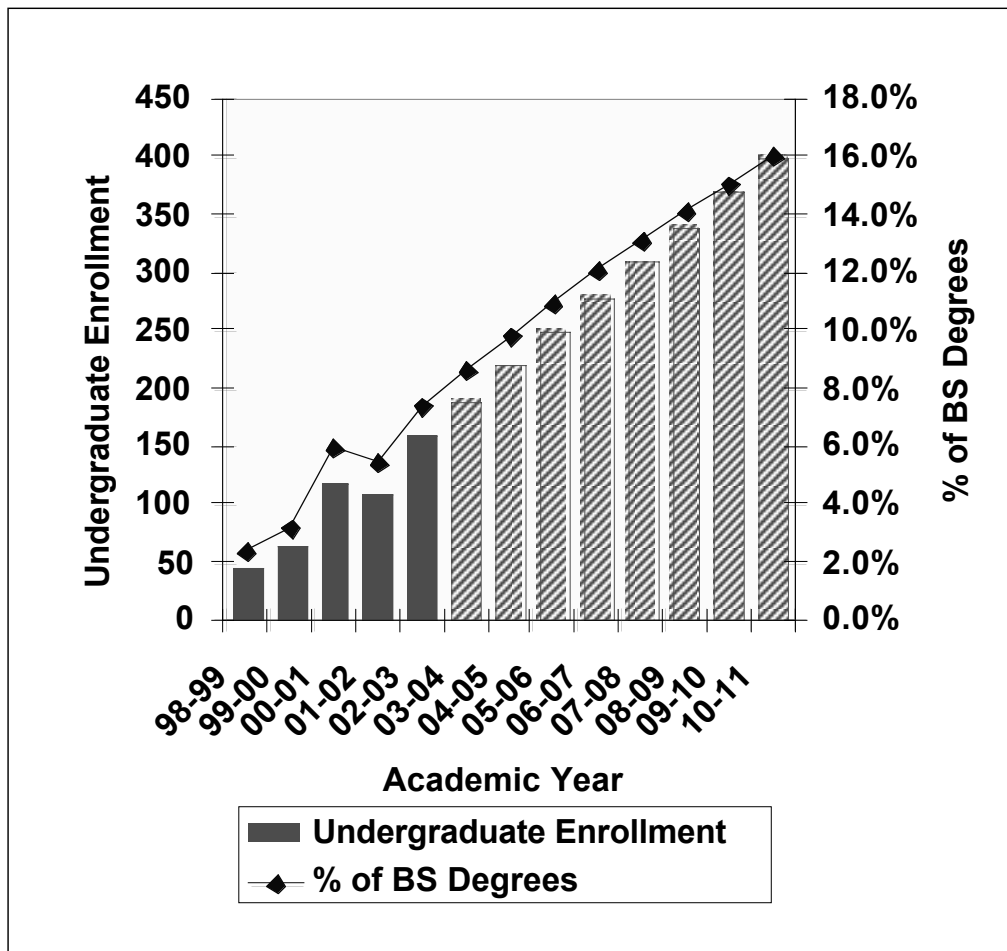
Total BS & MS Degrees													
	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
Undergraduate Program	45	65	120	110	160	190	220	250	280	310	340	370	400
BS of BS/D-D Program	0	0	0	0	0	0	25	40	70	110	160	220	290
MS/Diplome Program	45	60	120	110	160	190	220	250	280	310	340	370	400
MS of BS/D-D Program	0	0	0	0	0	0	0	12.5	32.5	55	90	135	190
All Other BS & MS	2773	2881	2793	2895	2955	2978	2976	2984	2977	2960	2933	2896	2849

Assumptions

- No BS increase beyond normal growth
- Some increase in MS beyond normal growth

✓ Basically, change the participation mix

expand undergraduate program



Better marketing

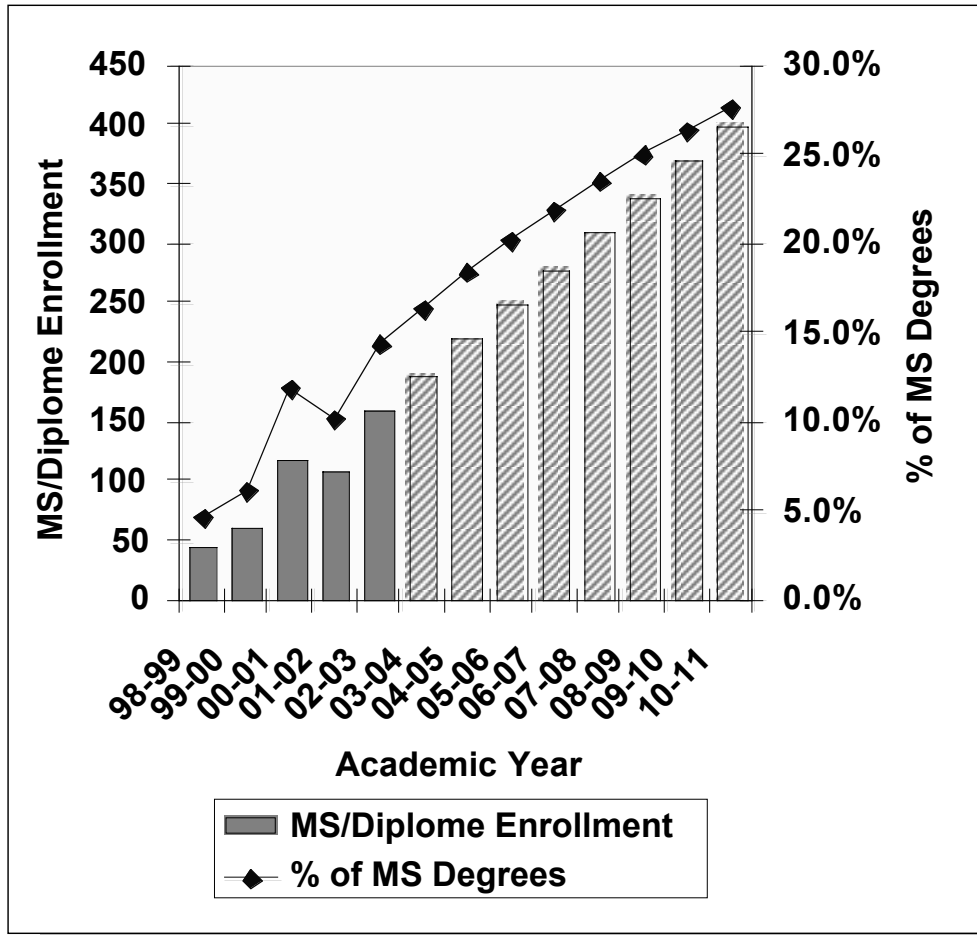
- Current students
- New students

More course offerings

On-site

Distance learning

expand double-degree program



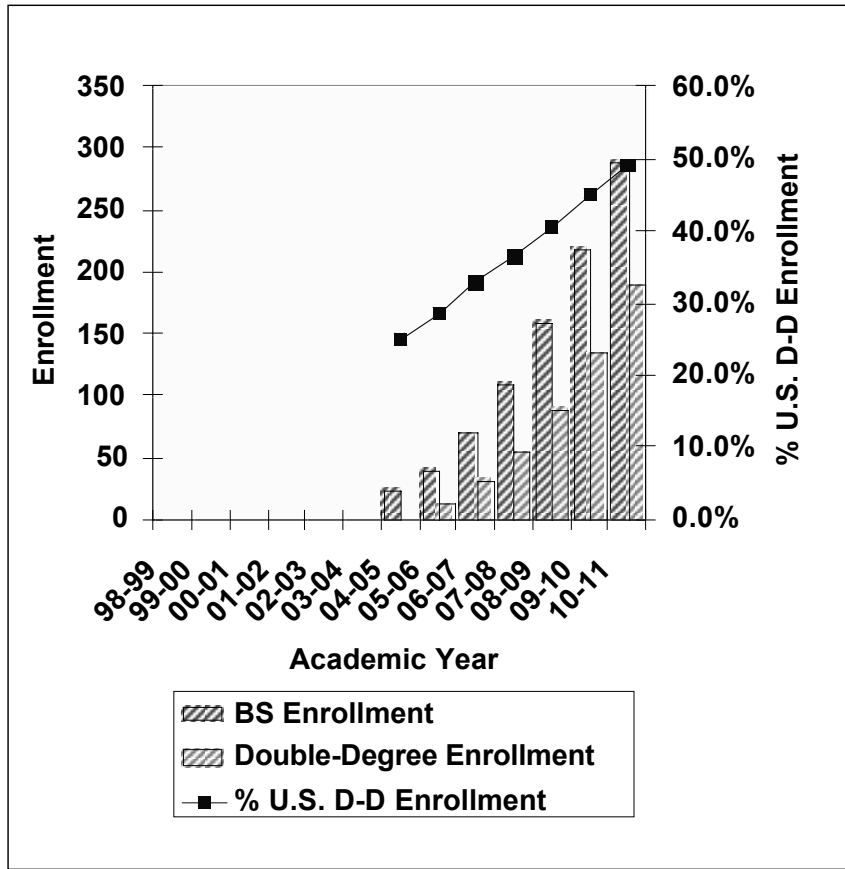
Better marketing

Expand partner schools

Germany

Connect to other GT campuses

create BS/Double-Degree



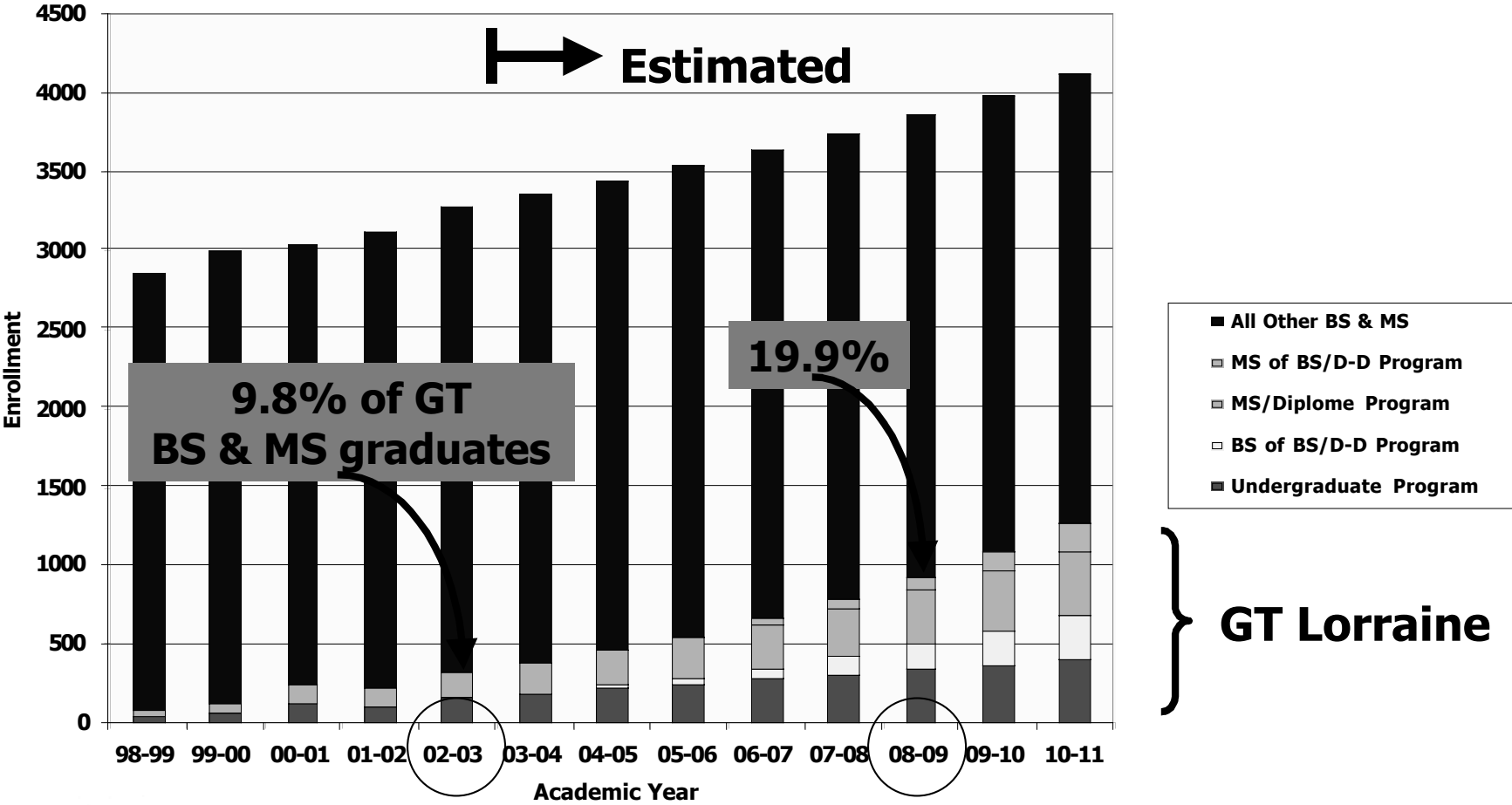
Encourage more U.S. students

Bring parity in participation

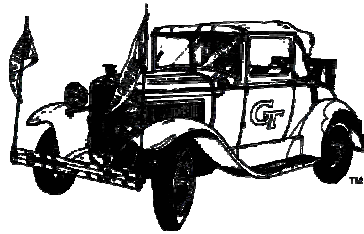
Attract very best undergraduates

Second degree in international

GT BS & MS Enrollment



Thank



You!

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mar03/export.htm](http://www.prism-magazine.org/mar03/export.htm)

www.georgiatech-metz.fr

www.gatech.edu

