WOOD CHEMISTRY AND WOOD BIOTECHNOLOGY

1.1. Identification

University:	Kungliga Tekniska Högskolan (Stockholm)													
School:	School of Chemical Science and Technology													
Course:	Wood Chemistry and Wood Biotechnology													
ECTS:	6													
Semester:	*Winter*							*Summer*						X
Category	*Fundamental course*					X		*Specialisation course*						
Module	*MFI*		*MFII*	X	*MFIII*			*MSI*		*MSII*		*MSIII*		
Teachers:	Göran Gellested													
Language:	*English*	X	*Italian*					*Swedish*	X	*Spanish*				

1.2. Learning-outcomes

- knowledge about the fundamentals of wood chemistry and biotechnology

1.3. Competencies

- **General**
  - to have critical understanding of technical and scientific tools
  - to work and manage teams
  - communication skills (both written and oral)
  - to work in an international context

- **Specific**
  - to understand the chemical structure of wood products, as well as their biosynthesis and components.
  - to know the biotechnical processes of relevance for the pulp and paper industry
  - to predict changes in structure and properties of wood polymers and pulps in the pulping process line

1.4. Contents

Raw materials used for pulp production. Macroscopic and morphological construction of wood and methods to measure it. Chemical structure and arrangement of the wood polymers and extractives. Biosynthesis of wood polymers .Carbohydrate and lignin analysis. Reactions mechanism of wood polymers in mechanical and chemical pulping and bleaching .Biotechnical processes of relevance for the pulp and paper industry. Types of microorganisms and their modes of interaction with wood. Hierarchical structure of wood and pulp is affected by chemical and microbiological

processes. Predict changes in structure and properties of wood polymers and pulps in the pulping process line.

1.5. Teaching Methodology

- Lecture sessions
- Practical sessions: “cooperative work” for solving problems
- laboratory sessions

1.6. Evaluation

- written exams
- oral evaluation of the problems solved by “cooperative work”
- oral evaluation of laboratory work

1.7. Bibliography

-Bledzki, A.K., “Natural and Wood Fibre Reinforcement in polymers”
- Bolton, A.J., Catling, D.M., “ Wood structure in biological and technological research” Leiden university Publ.