

**SINF1PM**

2014 - 2015

Preparatory year for Master in Computer science

**At Louvain-la-Neuve - 1 year - Day schedule - In french**Dissertation/Graduation Project : **NO** - Internship : **NO**Activities in English: **YES** - Activities in other languages : **NO**Activities on other sites : **NO**Organized by: **Ecole Polytechnique de Louvain (EPL)**Programme code: **sinf1pm****Table of contents**

Introduction .....	2
Teaching profile .....	3
- Learning outcomes .....	3
- Detailed programme .....	3
- Programme by subject .....	3
Information .....	5
- Admission .....	5
- Teaching method .....	6
- Evaluation .....	6
- Possible trainings at the end of the programme .....	6
- Contacts .....	6

## SINF1PM - Introduction

### Introduction

---

## SINF1PM - Teaching profile

### Learning outcomes

The goal of this programme is to complete the studies of a student in such a way that s/he will be capable to follow a Master programme in computer science.

This preparatory year aims at achieving or strengthening the following scientific and technical competences of the student:

- Improving his or her ability to conceive simple computer systems, by further developing his or her sense of reasoning and abstraction.
- Mastering the necessary mathematical techniques and skills to perform such reasoning.
- Acquiring a know-how that is sustainable and adaptable to the constant evolutions in computer science.
- To learn how to learn and stay up-to-date with these evolutions.

To summarize, the preparatory year allows to consolidate and deepen the student's knowledge of the basics in computer science and to get acquainted with the more rigorous and conceptual way of thinking that is typical to university degrees.

**On successful completion of this programme, each student is able to :**

**Raisonnement en manipulant des concepts et faire preuve de l'abstraction nécessaire à la conception des applications informatiques simples.**

Les thématiques abordées durant l'année préparatoire concernent les fondements de l'informatique: algorithmique, structures de données, langages (en particulier concepts associés à la programmation concurrente), systèmes informatiques, méthodes de conception de programmes.

**Utiliser efficacement les outils mathématiques pour mener à bien dans de tels raisonnements.**

Différents aspects des mathématiques sont traités dans le cadre des cours de l'année préparatoire et sont des prérequis pour certains cours de master.

- Les probabilités et statistiques sont régulièrement utilisées pour résoudre des problèmes informatiques en particulier en machine learning, sécurité ou réseau.
- Les mathématiques discrètes sont également au coeur de l'informatique, elle permet de structurer le raisonnement (logique), et de fournir un cadre rigoureux pour les structures discrètes utilisées pour représenter les données en machine.

## SINF1PM Detailed programme

### Programme by subject

Les 46 crédits de ce programme correspondent à la charge de travail pour un étudiant bachelier en sciences informatiques. Pour un étudiant issue d'une filière non-universitaire, un effort supplémentaire substantiel est généralement nécessaire, de sorte que la charge de travail réelle est celle d'une année complète de 60 crédits.

Le cours d'anglais suivi dépend du niveau de l'étudiant. Pour l'évaluer, des tests sont organisés en début d'année académique.

○ LING1101A	Discrete mathematics: logical foundations of computing science	Peter Van Roy	30h+30h	5 Credits	1q
○ LING1122	Program conception methods	José Vander Meulen	30h+30h	5 Credits	2q
○ LING1123	Computability and complexity	Yves Deville	30h+30h	5 Credits	2q
○ LING1131	Computer language concepts	Peter Van Roy	30h+30h	5 Credits	2q
○ LING1341	Computer networks: information transfer	Olivier Bonaventure	30h+30h	5 Credits	1q
○ LSINF1121	Algorithmics and data structures	Pierre Dupont, Virginie Van den Schrieck (compensates Pierre Dupont)	30h+30h	5 Credits	1q
○ LBIR1203	Probabilities and statistics (I)	Patrick Bogaert	30h+15h	4 Credits	1q

○ LECGE1115	Political Economics	Paul Belleflamme, Pierre Dehez, Jean Hindriks, Mélanie Lefèvre (compensates Paul Belleflamme), Rigas Oikonomou	45h+15h	5 Credits	1q
○ LFSAB1509	Project 4 (in Computer Science)	Yves Deville, Marc Lainez (compensates Yves Deville)	22.5h+22.5h	4 Credits	2q

### ○ Cours de langues. (3 credits)

En fonction de son niveau, l'étudiant choisit un des deux cours de langue suivants.

⊗ LANGL1370	English: reading comprehension	Dominique François, Céline Gouverneur (coord.)	30h	3 Credits	2q
⊗ LANGL1372	English for Computer Scientists	Albert Verhaegen	30h	3 Credits	2q

## SINF1PM - Information

### Admission

(Decree of March 31<sup>st</sup> 2004 defining higher education, favoring its integration in the European framework of higher education and refinancing universities)

The admission requirements must be met prior to enrolment in the university.

#### The mentioned information may of modification for 2014-2015

**In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail**

#### General conditions

**Access to the preparatory year on the basis of a bridging programme:** see <https://uclouvain.be/fr/etudier/passerelles/recherchez-vos-passerelles.html>

students may be required to take extra courses representing a maximum of 60 additional credits. Where the extra workload exceeds 15 credits, this training is considered to be a preparatory year of study. Access to the preparatory year on the basis of **accreditation of prior learning and skills acquired through personal or professional experience** :

Article 53 of the Decree of 30 March 2004 stipulates that: "Notwithstanding article 51, without prejudice to article 60, and in accordance with a decision by the academic authorities, for the purpose of granting access to Master's studies, the competent Examination Board may accredit prior learning and skills acquired by students through their personal or professional experience. This useful experience must correspond to at least five years of activities, excluding years of higher education study that were not passed. At the end of an assessment procedure organized by the academic authorities, the Examination Board will decide whether a student has sufficient knowledge and skills to successfully pursue Master's studies."

**Access to the preparatory year on the basis of accreditation of 180 ECTS credits by the Admissions Board (personalized admission based on application)** for students who have a degree from a Belgian university or qualifications obtained abroad (which do not give access to this particular year on the basis of the abovementioned general conditions).

—  
In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail

This preparatory year is accessible to students with a degree of "bachelier en informatique de gestion", "bachelier en informatique et systèmes", "bachelier en sciences industrielles".

Students having obtained a university degree in another discipline but with a sufficient background in computer science could also consider to reorient themselves towards a master in computer science via this preparatory year.

To enrol, an application letter needs to be sent to the academic secretary of student affairs (Secrétaire Académique aux Affaires étudiantes) via the secretariat INGI (Bâtiment Réaumur - Place Ste-Barbe 2 - 1348 Louvain-la-Neuve). The application letter needs to be completed with a curriculum vitae and a copy of the detailed results and marks obtained in all higher education studies followed previously by the student.

## Teaching method

---

The pedagogical approach consists of a mixture of traditional theory courses, practical sessions, computer science and programming projects, as well as problem-based learning approaches that give the student an active role in the learning process. Some assignments will need to be worked out in groups of up to 6 students. Such activities enable the student to develop other competences like the ability to cooperate, group management, efficient communication, time management and planning, and so on.

## Evaluation

---

The evaluation methods comply with the [regulations concerning studies and exams](#). More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".

The teaching activities will be evaluated according to the general UCL exam rules and regulations (see: <https://www.uclouvain.be/en-enseignement-reglements.html> ).

## Possible trainings at the end of the programme

---

Students who have passed his preparatory year have direct access to the master in computer science.

## Contacts

---

### Curriculum Management

Entité de la structure INFO

Acronyme	<b>INFO</b>
Dénomination	Commission de programme - Sciences informatiques et ingénieur civil en informatique
Adresse	Place Sainte Barbe, 2 bte L5.02.01 1348 Louvain-la-Neuve Tél 010 47 31 50 - Fax 010 45 03 45
Secteur	Secteur des sciences et technologies ( <a href="#">SST</a> )
Faculté	Ecole Polytechnique de Louvain ( <a href="#">EPL</a> )
Commission de programme	Commission de programme - Sciences informatiques et ingénieur civil en informatique ( <a href="#">INFO</a> )

**Academic Supervisor :** [Kim MENS](#)

### Jury

Président du Jury : **Jean-Didier LEGAT**

Secrétaire du Jury : **Pierre SCHAUS**

### Usefull Contacts

Conseillère aux études : **Chantal PONCIN**

