

BSC

INFORMATION

AND COMPUTING

SCIENCE

信息与计算科学

XJTLU | BSC
INFORMATION AND COMPUTING SCIENCE

CAREERS

Graduates will be well prepared for positions as software engineers, information system developers, system administrators, and other jobs in the information technology and computing industries. The programme also provides a solid foundation for those who want to start their own companies or find employment within specialist fields such as software development, intelligent systems, data science and analysis, information systems, electronic commerce, mobile development, and computer games design.

Graduates will also gain a solid foundation for postgraduate study in information and computer science.

START DATE
September 2021

2+2 STUDY
Available

DURATION
Three or four years

LOCATION
Suzhou

SCHOOL
School of Advanced Technology

ATTENDANCE
Full time

QUALIFICATION
XJTLU
BSc Information and Computing Science

University of Liverpool
BSc Information and Computing Science (hons,4+0)

BSc Computing Science (hons,2+2)

Xi'an Jiaotong-Liverpool University
西交利物浦大学

BSC INFORMATION AND COMPUTING SCIENCE

The BSc Information and Computing Science programme will provide a broad knowledge of information science and computing science. It contains designing, developing, building software systems by writing algorithms in order to process, structure, and manage information. It also involves in research and development in communications and media systems by using various computing principles and practical skills. The students will learn how cutting-edge information and computer technology are developed and how to apply them creatively to solve practical problems.

KNOWLEDGE AND SKILLS

By the time you graduate from BSc Information and Computing Science, you will have:

- The ability to design and develop computer-based systems
- The skills to analyse the effectiveness of computer-based systems and the ways in which they may be developed
- A demonstrated knowledge and understanding of mathematical principles and computational modelling which underpin the study of information and computing science
- The ability to work as a member of a development team, recognising the distinct roles within a team and different ways of organising teams
- The capability to perform innovative work using cutting edge technologies

WHY SHOULD I STUDY INFORMATION AND COMPUTING SCIENCE AT XJTLU?

- Receive in-depth knowledge about both the theory and practice of information and computing science
- Engage in research under the supervision of staff with the possibility of presenting your results at international conferences and publishing in leading journals
- Apply for Summer Undergraduate Research Fellowships that allow you to conduct supervised research with financial support
- Take advantage of student placement opportunities for career development and practical experience to complement your theoretical studies
- Earn two degrees: an XJTLU degree from the Chinese Ministry of Education and a globally recognised degree from the University of Liverpool, a member of the Russell Group of leading UK universities

MODULES

YEAR ONE

UK degrees are three years long whereas in China they are four, and therefore we do accept students with certain qualifications directly into Year Two, which is the start of the main academic programme. Most students, however, enter into Year One, which provides you with a range of interesting modules, language classes and core skills for your degree.

YEAR THREE

Compulsory modules:

DECISION, COMPUTATION AND LANGUAGE

INTRODUCTION TO NETWORKING

SOFTWARE ENGINEERING I

HUMAN CENTRIC COMPUTING

COMPLEXITY OF ALGORITHMS

ADVANCED OO PROGRAMMING

SOFTWARE ENGINEERING GROUP PROJECT

Optional modules:

COMPUTER GRAPHICS

DATABASE DEVELOPMENT AND DESIGN

YEAR TWO

COMPUTER SYSTEMS

INTRODUCTION TO PROGRAMMING IN JAVA

INTRODUCTION TO DATABASES

DISCRETE MATHEMATICS AND STATISTICS

ALGORITHMIC FOUNDATIONS AND PROBLEM SOLVING

DATA STRUCTURES

ARTIFICIAL INTELLIGENCE

OPERATING SYSTEM CONCEPTS

YEAR FOUR

Compulsory modules:

FINAL YEAR PROJECT

Choose from six of the following:

BIO-COMPUTATION

MACHINE LEARNING

BIG DATA ANALYTICS

FORMAL METHODS

MOBILE COMPUTING

COMPUTER SYSTEMS SECURITY

TECHNOLOGIES FOR E-COMMERCE

MULTI-AGENT SYSTEMS

SOFTWARE ENGINEERING II

PRINCIPLES OF COMPUTER GAMES DESIGN



信息与计算科学

本专业旨在让学生掌握计算机系统基础知识，了解计算机原理在研究、开发和技术支持等方面的应用，并学会如何创造性地运用知识解决实际问题。

知识与技能

本专业毕业生将具备以下能力：

- 能够设计和开发计算机系统
- 掌握计算机设计方法，具备系统性能分析能力
- 掌握信息科学和计算机科学的基本理论，了解数学原理和计算建模方法
- 作为开发团队的一员，能理解团队中的不同角色以及团队构建的不同方式
- 具有创新思维，并能使用前沿技术解决实际问题

专业特色

- 深入学习计算机科学理论和实践知识
- 在专业教师的指导下，学生有机会在国际学术会议展示自己的研究成果并在国际知名期刊发表论文
- 每年都有相当一部分学生获得夏季本科生研究基金的资助，在老师的指导下开展暑期科研项目
- 利用实习机会积累实战经验，与理论学习互为补充，为职业发展打下基础
- 毕业生可获得中国教育部认可的西交利物浦大学学位和国际认可的英国利物浦大学学位

就业

毕业生可胜任的工作岗位包括：IT及计算机行业软件工程师、信息系统开发人员、系统管理员等。该专业还为有志于在软件开发、智能系统、数据科学及分析、信息系统、电商、移动应用开发及电脑游戏设计等专业领域就业或自主创业的人士打下坚实基础。

毕业生也可以本科阶段学习为基础，继续攻读信息和计算科学领域的研究生学位。

课程

第一学年

英国本科阶段学制是三年，而中国本科阶段学制为四年。因此，我校接受具有一定资质的学生直接升入二年级进行专业学习；大多数学生则是进入一年级，开始语言课程及专业基础技能学习。

第三学年

决策、计算和语言
网络导论
软件工程 I
人机交互
算法复杂性
高级面向对象程序设计
软件工程团队项目

选修课程：

计算机图形学
数据库开发与设计

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|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|  开始时间 2021年09月 |  学院 智能工程学院 |
|  2+2 留学模式 可选 |  学位证书 西交利物浦大学 信息与计算科学（理学学士） |
|  学制 四年 | 利物浦大学 BSc Information and Computing Science(hons,4+0) |
|  学习地点 苏州 | BSc Computing Science (hons,2+2) |
|  教学形式 全日制 | |

第二学年

计算机系统
Java编程
数据库系统概论
离散数学与统计
算法基础及问题求解
数据结构
人工智能
操作系统概论

第四学年

毕业设计

以下课程中选修6门：

仿生计算
机器学习
大数据分析
形式化方法
移动计算
计算机系统安全
电子商务技术
多智能体系统
软件工程II
电脑游戏设计原理

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Programme instructors have worked at world-renowned institutions and have diverse experience in teaching, research, and collaboration with industry.

信息与计算科学专业提供信息科学及计算科学的全面知识，包括通过编写算法来设计、开发和构建软件系统，从而处理、构造和管理信息；以及运用各种计算原理和实操技能，进行通信与媒体系统的研究和开发等。学生将掌握信息与计算机专业知识，了解该领域前沿技术，并学会如何创造性地运用所学知识与技能解决实际问题。

该专业教师曾在世界知名院校和研究机构工作，拥有教学、科研及业界合作方面的多元化经验。