ENGINEERING DEGREE - Semester 7

Teaching Unit	ECTS	Elective	Credits	Code	Module	Lecture	Lecture & Tutorial	Tutorial	Personnal work
ES-TEC4BS1 CORE PROGRAM - SCIENCE AND TECHNOLOGY	13.0		3.0	INF4032	Computer networks	12.00	.	15.00	33.00
			2.0	INF4033	System programming	9.00	.	9.00	22.00
			2.0	MAT4052	Numerical in Python	9.00	.	9.00	22.00
			1.0	INF4046	Applied Cryptography	3.00	.	9.00	8.00
			2.0	MAT4056	Probabilistic data analysis	.	18.00	.	22.00
			2.0	INF4052	Virtualization and containerization	6.00	.	12.00	22.00
			1.0	INF4103	Information Systems architecture	9.00	.	.	11.00
ES-HUM4BS1 CORE PROGRAM - CORPORATE CULTURE	3.0		1.0	ENT4117	Business game	.	.	18.00	5.00
			0.5	LAN4081AN	English	21.00	.	.	19.00
			0.0	LAN4083AN	Remedial English Cond	15.00	.	.	0.00
			1.0	ENT4305	Internship Preparation	.	1.50	7.50	11.00
			0.5	HUM4041	Human impact on its environment	7.50	.	.	2.50
ES-PRO4BS1 CORE PROGRAM PROJECT	8.0		7.0	PLU4190	Project in Digital Science and Technology	3.00	.	15.00	140.00
			1.0	PLU4001	Challenges and certifications	3.00	.	.	17.00
SEA4BS1 EMBEDDED SYSTEMS S7	6.0	X	2.5	LAB4411	Fieldbus	3.00	.	15.00	32.00
			3.5	SYS4048	Design of programmable components and HDL language	9.00	.	18.00	43.00
IAD4BS1 AI & DATA SCIENCE MAJOR S7	6.0	X	1.0	INF4048	Ai for society	.	9.00	.	11.00
			2.0	INF4044	Data Engineering	.	9.00	9.00	22.00
			1.5	INF4056	Image analysis	.	3.00	9.00	18.00
			1.5	INF4018	Dataviz	.	.	9.00	21.00

SWE4BS1 SOFTWARE ENGINEERING S7	6.0	X	2.5	INF4066	Application design	6.00	.	12.00	32.00
			3.5	INF4062	Full-stack development	3.00	.	21.00	46.00
RVS4BS1 VIRTUAL REALITY & IMMERSIVE SYSTEMS S7	6.0	X	2.0	INF4059	3D modeling	.	12.00	.	32.00
			1.0	INF4070	XR Development	.	9.00	.	0.00
			1.0	INF4072	Programming Fundamentals for XR	.	15.00	.	0.00
			2.0	INF4071	UX Design fundamentals	.	9.00	.	0.00
CYB4BS1 CYBERSECURITY MAJOR S7	6.0	X	2.5	ENT4304	Cybersecurity ethics & laws	18.00	.	.	32.00
			2.5	INF4053	Web penetration testing and remediation	.	18.00	.	32.00
			0.5	INF4306	Mobile operating system basics	.	6.00	.	4.00
			0.5	INF4307	Hardware analysis basics	.	6.00	.	4.00

INF4032 Computer networks

Information

Course name	Computer networks	**Professor (Paris Campus)**	HAIDAR B.
French course name	Réseaux Informatiques	**Professor (Laval Campus)**	REY R.
Coefficient	3.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	12.00 hour(s)
Lab	15.00 hour(s)

Evaluation

Grading	Lab/Tutorial, Final Exam, Individual Project,
Final exam	1.50 hour(s)

Course Syllabus

Learning outcomes

From the basic notions acquired in 3A, this course aims to go up in the layers of the OSI model to reach the level of application protocols (L7). Additional concepts are also covered such as radio and optical media, IPV6, tagged VLANs, dynamic routing, NAT/PAT and RPC.

Content and chapters

Course content:

- Reminds of the basic concepts (OSI model, switching, Ethernet, VLAN, IPV4, ARP, DHCP, static routing, xDSL)
- Signal processing: digitization, transcoding and modulation
- Optical and radio physical media
- WIFI
- IPV6
- Dynamic routing
- TCP, UDP, NAT/PAT, RPC and application protocols
- The FTTx local loop
- Introduction to PLC, GSM and satellite

Content of the practical works:

- LAB1 : Reminders (Hub VS Switch, network configuration, DHCP)
- LAB2 : Static routing and VLAN
- LAB3 : IPV6 introduction
- LAB4 : Dynamic routing : quagga router, RIPV2, BGP
- LAB5 : TCP/UDP, DNS and NAT
- LAB6 : Packet Forging
- LAB7 : Internet services and PAT (HTTP, FTP, SMTP, POP, etc.)
- LAB8 : LAN services (Files sharing, RPC, SMB, NFS, etc.)

Prerequisites

ESIEA course : INF3050 (Réseaux informatiques)

INF4033 System programming

Information

Course name	System programming
French course name	Programmation système
Coefficient	2.0
Optional/Mandatory	Mandatory

Professor (Paris Campus)	BRIERE A.
Professor (Laval Campus)	REY R.
Programs	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Semester	S7

Course Hours

Lecture	9.00 hour(s)
Lab	9.00 hour(s)

Evaluation

Grading	Midterm Exam, Lab/Tutorial, Individual Project,
Final exam	1.50 hour(s)

Course Syllabus

Learning outcomes	Study, modify and create programs in C exploiting internal functions of the operating system kernel (direct access to the File System, process and thread management, inter-process communication, network programming, etc.).
Content and chapters	• Advanced C (reminders on compilation, static and dynamic libraries, parameters, debugging) • The microprocessor and privileges (ring), system calls • Access to File Systems (handling, access rights, links, special files) • Process and thread management (creation, synchronisation and destruction) • Inter-process communication management (IPC): message queues, tubes, shared memory areas, semaphores, mutex, futex, etc.) • Multi-processing and multi-theading • Socket programming
Prerequisites	• Operating System" and "System Administration" courses (INF3039, INF3040) • IP Networks 3A and 4A (INF3050 and INF4032) • C programming

MAT4052 Numerical in Python

Information

Course name	Numerical in Python	**Professor (Paris Campus)**	HAIDAR S.
French course name	Numerical in Python	**Professor (Laval Campus)**	LE BERRE M.
Coefficient	2.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	9.00 hour(s)
Tutorial/Lab	9.00 hour(s)

Evaluation

Grading	Lab/Tutorial, Final Exam,
Final exam	1.50 hour(s)

Course Syllabus

Learning outcomes	- Mathematically formulate an optimization problem from a problem statement. - Select and implement appropriate methods to solve the optimization problem. - Interpret and communicate the results of an optimization solution.

Content and chapters	**Interactive Courses** **Lesson 1: Introduction to Optimization** - Definitions, examples, optimization vocabulary. - Minimization problems. - Linear programming: normal and standard forms, graphical solution, geometric algorithm. **Course 2: Advanced Linear Programming** - Analytical solution. - Simplex algorithm, Simplex table. - Two-phase method, dual problem. **Course 3: Differential Optimization** - Reminder of differential calculus. - One- and multidimensional search methods. - Gradient methods, other optimization techniques. **Tutorials** **TD1 : Linear Programming and Graphical Visualization in Python** - Analysis of linear programming. - Using the Matplotlib library to plot 2D functions. - Create graphical visualizations of linear programming solutions. **TD2: Solving linear programs in Python** - Use the Python libraries Scipy and Pulp. - Formulate linear models for real-world situations. - Analyze and apply linear programming theory. - Practice solving linear problems manually and automatically. **TD3: Numerical Optimization with Python** - Introduction to numerical optimization methods, especially gradient descent. - Use of TensorFlow and Keras for numerical solution. - Convergence analysis and evaluation of method efficiency.
Prerequisites	• Mastery of linear algebra (solving systems of linear equations, Gauss pivot). • Knowledge of differential calculus (derivative of a one-parameter function, gradient of a multi-parameter function). • Programming skills.

INF4046 Applied Cryptography

Information

Course name	Applied Cryptography	**Professor (Paris Campus)**	LARINIER S.
French course name	Cryptographie appliquée	**Professor (Laval Campus)**	AUBIN J.
Coefficient	1.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	3.00 hour(s)
Lab	9.00 hour(s)

Evaluation

Grading	Final Exam,
Final exam	1.00 hour(s)

Course Syllabus

Learning outcomes	Understand and manipulate a Public Key Infrastructure (PKI).
Content and chapters	**Theoretical course :** 1. Reminders on encryption algorithms (symmetric and asymmetric), hash functions and digital signatures. 2. Presentation of electronic certificates and certification authorities (private, public, open source). Presentation and operating principle of a PKI. Examples of some standards on PKI. Presentation of good practices in terms of cybersecurity. **Practical work (Implementation of a PKI) :** 1. Implementation of a decentralized PKI. Generation of PGP keys with sending an email to the instructor and mutual authentication. 2. Implementation of a centralized PKI to secure a web server. Creation of a pyramid of certification authorities (root, domain and user). Creation of a certificate for the web server. Enabling the web server's https protocol. Enabling certificate control of the web server clients.
Prerequisites	3A courses : Computer networks, Operating systems, System administration, Introduction to cybersecurity.

MAT4056 Probabilistic data analysis

Information

Course name	Probabilistic data analysis	**Professor (Paris Campus)**	PIOT M.
French course name	Analyse probabiliste de données	**Professor (Laval Campus)**	VALENCE A.
Coefficient	2.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture/Tutorial(	18.00 hour(s)

Evaluation

Grading	Lab/Tutorial, Final Exam,
Final exam	1.50 hour(s)

Course Syllabus

Learning outcomes

- Make a numerical and/or graphical summary of a database.
- Use the different Bayesian inference functions already available in the free R software.
- Address problems and decision-making from a probabilistic perspective
- Represent knowledge using graphs and take into account priors when making decisions.

Content and chapters

Based on concrete examples using data sets and the R language, the following concepts will be presented:

- Chapter 1: Independence tests (6h)
  - Performing hypothesis tests in R, p-value interpretation, type I and II errors, Bonferroni corrections
  - Tests of independence between two qualitative variables (Chi2 and Fisher's exact test)
  - Tests of independence between two quantitative variables (Pearson correlation)
- Chapter 2: Knowledge graphs (6h)
  - Creating a knowledge graph from a succession of Chi2 tests with R
  - Introduction to Bayesian networks with R
  - Conditional probabilities, Bayes' theorem, total probability formula, compound probability formula, joint probability distribution
- Chapter 3: Knowledge propagation and decision-making (6h)
  - Making probabilistic inferences with R using Bayesian networks
  - Definition of maximum a posteriori and maximum likelihood and application to Bayesian networks with R
  - Integration of priors with R

Prerequisites

- Module INF2032
- Module MAT3055

INF4052 Virtualization and containerization

Information

Course name	Virtualization and containerization	**Professor (Paris Campus)**	HEISS G.
French course name	Virtualisation et conteneurisation	**Professor (Laval Campus)**	REY R.
Coefficient	2.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	6.00 hour(s)
Tutorial/Lab	12.00 hour(s)

Evaluation

Grading	Final Exam, Individual Project,
Final exam	1.46 hour(s)

Course Syllabus

Learning outcomes

Identify the underlying virtualization and containerization technologies for implementing virtualized services.

Implement and administer a small virtualized/containerized services infrastructure locally.

Identify and leverage commercial virtualization/containerization solutions on the market.

Content and chapters

Introduction

- Background:
  - Emulate before virtualizing
  - Isolate before containerizing
- Virtualization and Containerization (objective, benefits, architectures)
- Limitations and requirements (hardware and network)

Virtualization

- Virtual machines (jvm, virtualbox, vmware-workstation, qemu, etc.)
- Hypervisors - State of the art technologies (vmware, hyperV, xen, kvm, etc.)
- LAB: Implementation of an infrastructure based on a type I hypervisor (e.g. proxmox)

Containerization

- State of the art technologies (lxc, lxd, openVZ, docker, etc.)
  - Practical with "docker" + LAB
- Orchestration
  - Practical with "Swarm" and "compose" + LAB
  - Kubernetes introduction (K8s) + LAB
- **Presentation of commercial offers**

Prerequisites

Operating system
System administration
Computer network 3A & 4A

INF4103 Information Systems architecture

Information

Course name	Information Systems architecture	**Professor (Paris Campus)**	FARCY V.
French course name	Architecture des systèmes d'information	**Professor (Laval Campus)**	REY R.
Coefficient	1.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	9.00 hour(s)

Evaluation

Grading	Final Exam,
Final exam	1.50 hour(s)

Course Syllabus

Learning outcomes	Identify the architectural elements of an information system within the company. Position your project in a global architectural approach to a functional area or district. Position your project within the architecture of the company's IS. Have a global knowledge of technical solutions for the architecture of information systems, including Cloud Computing solutions.
Content and chapters	System Information : what is it? What is urbanization? What is architecture? Different types of existing architecture The architectures Software architecture From a centralized model to a distributed model Web architecture IS networks Integration architecture - Service oriented architecture Cloud architecture Specialized architectures Architecture and agility The architecture of tomorrow / trends Practical case: architecture and projects, create our IS for an e-commerce application

Prerequisites	Operating systems - INF3039
	DBMS - INF3031
	Computer network - INF3050
	Software development

ENT4117 Business game

Information

Course name	Business game	**Professor (Paris Campus)**	FOUCAULT A.
French course name	Jeux d'entreprises	**Professor (Laval Campus)**	FOUCAULT A.
Coefficient	1.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Tutorial/Lab	18.00 hour(s)

Evaluation

Grading	Final Exam, Group project, Group presentation,
Final exam	4.00 hour(s)

Course Syllabus

Learning outcomes	students will be able to : - analyse a dashboard of business performance indicators, - propose corrective actions - justify their business management decisions
Content and chapters	Chapter 1: Business Monitoring tools : Balance Scord Card, North Star Metrics and the concept of source indicators Exercise: Internal and external diagnosis of a company to produce a balanced scorecard and define its North Star Metric Chapter 2: The financial health of the company, the notion of cash flow, of break-even and net income.
Prerequisites	Knowledge of basic economics

LAN4081AN English

Information

Course name	English	**Professor (Paris Campus)**	COCKS J.
French course name	Anglais	**Professor (Laval Campus)**	HESSION J.
Coefficient	0.5	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	21.00 hour(s)

Evaluation

Grading	Lab/Tutorial, Individual presentation ,
Final exam	0.00 hour(s)

Course Syllabus

Learning outcomes	Employ appropriate formality and conventions appropriate to the context in the writing of professional e-mails, CVs, personal profiles and covering letters. Take the initiative in an interview, and expand and develop ideas with little help or prodding from an interviewer. Describe the significance of their education and experiences convincingly in a 60 second pitch.
Content and chapters	Various written assignments with instructor feedback Read and understand job application materials Prepare for job interviews Study examples of 60 second pitches and record an individual pitch
Prerequisites	No prerequisites

LAN4083AN Remedial English

Information

Course name	Remedial English	**Professor (Paris Campus)**	COCKS J.
French course name	Anglais renforcé s7	**Professor (Laval Campus)**	HESSION J.
Coefficient	0.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Conditional	**Semester**	S7

Course Hours

Lecture	15.00 hour(s)

Evaluation

Grading	Final Exam,
Final exam	1.25 hour(s)

Course Syllabus

Learning outcomes	A complement to the English module
Content and chapters	
Prerequisites	none

ENT4305 Internship Preparation

Information

Course name	Internship Preparation	**Professor (Paris Campus)**	DAOUDI A.
French course name	Préparation à la recherche de stage	**Professor (Laval Campus)**	HAJADI R.
Coefficient	1.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture/Tutorial(	1.50 hour(s)
Tutorial/Lab	7.50 hour(s)

Evaluation

Grading	Individual Project,
Final exam	0.00 hour(s)

Course Syllabus

Learning outcomes	- Define your professional project, identify your assets and learn to put them forward. - Optimize your application tools (CV, LM, professional social networks...) and the different channels. - Establish a search strategy and organization, communicate with recruiters in an efficient and professional manner
Content and chapters	Internship search tools and strategy (handled internally) Business conferences organized by the Corporate Relations Department (see calendar) Specific conference: "Searching for an internship HR interviews (for students in difficulty)
Prerequisites	3A Professional Project Seminar

HUM4041 Human impact on its environment

Information

Course name	Human impact on its environment	**Professor (Paris Campus)**	ROUSSEL L.
French course name	Impact humain sur son environnement	**Professor (Laval Campus)**	ROUSSEL L.
Coefficient	0.5	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	7.50 hour(s)

Evaluation

Grading	Final Exam,
Final exam	0.50 hour(s)

Course Syllabus

Learning outcomes	Feel the social and environmental stakes Understand the scientific foundations of the ecological transition To question and act on the implementation of ecological transition in the engineering profession
Content and chapters	5 sessions of 1h30 : Energy : history and definition - types of energy (fossil, renewable) - consumption & orders of magnitude - outlook and consequences Climate and climate change : history and definition - greenhouse gas emissions - outlook and consequences Natural resources : the limits of raw materials - pollution emissions - outlook and consequences Biodiversity : history and definition, outlook and consequences, food production, waste Game and evaluation
Prerequisites	Have read the links in the bibliography

PLU4190 Project in Digital Science and Technology

Information

Course name	Project in Digital Science and Technology	**Professor (Paris Campus)**	FARCY V.
French course name	Projet scientifique et technique 4A	**Professor (Laval Campus)**	REY R.
Coefficient	7.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	3.00 hour(s)
Tutorial/Lab	15.00 hour(s)

Evaluation

Grading	Individual Project, Group project, Group presentation,
Final exam	0.00 hour(s)

Course Syllabus

Learning outcomes

This module defines the basics of operational project management in a context similar to a professional one.Student

At the end of this module, students will be able to:

- identify the stakeholders of a project

- design a technical solution

- regulate teamwork

- deliver a result

Content and chapters

This module defines the basics of operational project management in a context similar to a professional one
Students are entrusted with the mission of providing an answer to a problem proposed by a professional sponsor (company, teacher, research laboratory) or as part of a business creation.

- Management of human relations associated with a project
- Problematization
- Definition and framework of a project
- Study and proposal of the choice of solutions
- Project organisation
- Produce and verify compliance
- Delivery documentation
- Deliver

Prerequisites

- 3A level validated

PLU4001 Challenges and certifications

Information

Course name	Challenges and certifications	**Professor (Paris Campus)**	BRIERE A.
French course name	Challenges et certifications	**Professor (Laval Campus)**	REY R.
Coefficient	1.0	**Programs**	Engineering Degree Engineering Degree, English Taught Program
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	3.00 hour(s)

Evaluation

Grading	Individual Project,
Final exam	0.00 hour(s)

Course Syllabus

Learning outcomes	Acquire new experiences, knowledge and skills that complement the modules of the academic curriculum.
Content and chapters	Each student chooses two activities (2 moocs or 1 mooc/1 challenge or 2 challenges) per semester among those validated and referenced by the teaching staff. To be validated, a mooc must have a duration of at least 5 hours. In the case where a mooc has a duration of at least 40 hours, it can be accepted to validate the two activities requested.
Prerequisites	None

INF4066 Application design

Information

Course name	Application design	**Professor (Paris Campus)**	IONASCU F.
French course name	Conception d'applications	**Professor (Laval Campus)**	IONASCU F.
Coefficient	2.5	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	6.00 hour(s)
Tutorial/Lab	12.00 hour(s)

Evaluation

Grading	Final Exam, Group project,
Final exam	1.00 hour(s)

Course Syllabus

Learning outcomes

- Identify and model use cases and user stories for a simple application
- Apply functional design techniques based on use cases and user stories

Content and chapters

Introduction to functional design and use cases

- Understanding Functional Design: Principles and Benefits
- Introduction to Use Case Modeling (UML Use Case Diagram)
- Identify actors, scenarios and use cases

Requirements collection and analysis

- Collect functional requirements from stakeholders
- Analyze use cases: identify preconditions, postconditions and actor objectives
- (optional) Prioritization of use cases and requirements

Use case implementation

- Translate use case specifications into functional requirements
- Concept of module and interface
- The Clean Architecture proposal; dependency inversion; weak coupling
- Design of modules and functional components: identify entities, services, gateways, interactors and model them in UML

Practical work:

- Identify and prioritize use cases for a given application scenario
- Writing use case specifications/user stories for a Java application
- Using Dependency Inversion for Module Decoupling in Java Applications

Project:

- Application to develop following the Clean Architecture, based on use cases

Tools:

Java, IntelliJ Idea, Git, Maven, JUnit

Prerequisites	• Java • Object Oriented Programming • Tools for Software development

INF4062 Full-stack development

Information

Course name	Full-stack development	**Professor (Paris Campus)**	ROBIN J.
French course name	Developpement Full-Stack	**Professor (Laval Campus)**	ROBIN J.
Coefficient	3.5	**Programs**	Engineering Degree Engineering Degree, English Taught Program Engineering Degree by apprenticeship
Optional/Mandatory	Mandatory	**Semester**	S7

Course Hours

Lecture	3.00 hour(s)
Tutorial/Lab	21.00 hour(s)

Evaluation

Grading	Lab/Tutorial, Final Exam,
Final exam	1.50 hour(s)

Course Syllabus

Learning outcomes

- Develop fullstack web applications connecting a heavy frontend client based on reusable, reactive, *User Interface (UI)* web comoponents with a backend provided as a set of high-level web services.
- Test, mesure the test coverage and debug the application with specialized tools provided by an *Integrated Development Environment (IDE)*, the web browsers and/or their respective extensions.
- Deploy the backend of these applications either on remote cloud or as a container on a local network.

Content and chapters

1. Web standards and architectures
2. Overview of the Quasabase web development full-stack (Quasar and Vue in the front-end, Supabase in the back-end and Cypress for testing)
3. Component and template based reactive GUI programming with Vue
4. Responsive GUI design with Quasar
5. Web application testing with Cypress
6. Manual back-end content management with Supabase Studio
7. User authentication with Supabase Auth
8. Front-end routing with Vue Router
9. Front-end - back-end synchronization with the middleware Supabase REST and Supabase Realtime (publication-subscription pattern)

Prerequisites

Basic knowledge of the following web standards:

- JavaScript 7+, JSON and the Domain Object Model (DOM) API

- HTML 5

- CSS 3+

- HTTP and URL

Experience in programming in some multiparadigm, imperative, functional, event-driven and object-oriented language