RIT CROATIA PROGRAM OUTLINE

PROGRAM TITLE: WEB AND MOBILE COMPUTING

TYPE OF PROGRAM: Undergraduate professional program

DURATION OF PROGRAM: 4 years /8 semesters

TOTAL NUMBER OF ECTS: 240

SCIENTIFIC AREA: Technical Sciences

SCIENTIFIC FIELD: Computing
1. ENROLLMENT CRITERIA

Admission requirements: Upon completion of a high-school program students are admitted on the basis of results from the State Matura exams (state high-school exit exam) or results from the entrance exam for the undergraduate program.

Application process:

1. Candidates may apply to RIT Croatia using the Central Application System ("Postani student") and taking the State Matura Exams (state high-school exit exam):
   - Mathematics: B level
   - English language: B level

2. Candidates may apply to RIT Croatia through the entrance exam admission process consisting of written exams in Mathematics and English language. The entrance exam admission process is intended for the following candidates:
   - Candidates who have completed high school education prior to AY 2009/2010
   - Candidates who have completed vocational or art school programs, obtaining a basic or secondary professional high-school degree through in-school final assessments (completion of a final assignment)
   - Candidates who have completed their secondary education outside Croatia, not applying through the Central Application System.

2. CRITERIA FOR ENROLLMENT IN THE NEXT SEMESTER/YEAR LEVEL

A student must maintain a cumulative GPA of 2.00 or above at RIT Croatia in order to remain in good academic standing. Any student whose Term Grade Point Average falls below 2.00 (and is above 1.00) or whose overall Cumulative Grade Point Average falls below 2.00 will be placed on probation (i.e. is eligible to enroll in classes, though specific conditions of enrollment or restrictions will be applied).

Any student whose overall Cumulative Grade Point Average falls below 2.00 will be placed on academic warning.

Suspension refers to the academic action taken when a student is not permitted to enroll in courses at the university for a determined period of time.

a. Any degree-seeking undergraduate student whose Term Grade Point Average falls below a 2.00 (C average) and for whom suspension is not applicable will be placed on probation.
b. Any student who is on probation and who is not removed from probation in the two succeeding terms (including summer session) in which credit is attempted will be suspended from RIT Croatia for a period of one calendar year.

c. Any student whose Term Grade Point Average falls below 1.00 will be suspended from RIT Croatia. Students will be able to return the following academic year, in the same term they were suspended.

d. A suspended student cannot enroll in any credit or non-credit course at the university while on suspension. This also includes co-ops.

e. A suspended student may not be admitted to another program while suspended.

f. In special circumstances, a suspended student may apply in writing to the Associate Dean for Academic Affairs for a suspension waiver. This waiver request will be evaluated by the Associate Dean and the academic advisers before submission of the request to the Dean. This waiver must be approved by the Dean of the College.

The waiver carries specific responsibilities on the student’s part. These may include registering in specific courses, achieving a semester GPA of at least 2.5, not withdrawing from any courses in which we will ask the student to enroll, taking a maximum term load of 12 credits, attending bi-weekly meetings with his or her faculty adviser. These responsibilities are stated in a contract the student will be required to sign. Should the student fail to abide by the conditions of the contract, or should the academic performance warrant suspension again, he or she would then be suspended with no opportunity to appeal.

3. TRANSFER PROCEDURE

Credit transfer procedure and transfer procedures generally speaking are defined by The Rulebook on Admission Requirements and Transfer Procedures from other HE institutions to RIT Croatia.

4. GRADUATION REQUIREMENT

IT Graduation requirements

All of the following are required for graduation from a student’s program:

- A Cumulative Grade Point Average (GPA) of 2.00
- Satisfactory completion of the capstone course
- Completion of 126 credits for the B.S. degree (240 ECTS for the Croatian four-year degree)
- Satisfactory completion and grade for the required co-ops in duration of 800 working hours
Graduation with Honors

Honors posted to the academic record will be based upon the student's Cumulative Grade Point Average upon completion of the degree requirements. The numerical criteria for graduation with honors are as follows:
- Summa cum laude – 3.80 Cumulative GPA
- Magna cum laude – 3.60 Cumulative GPA
- Cum laude – 3.40 Cumulative GPA

5. DEGREES UPON COMPLETION OF THE STUDIES

RIT Croatia is the only educational institution in Croatia granting two degrees: an American degree from RIT and a Croatian degree from RIT Croatia.

Upon successful completion of the four-year program in Information Technology students receive a Bachelor of Science (B.S.) degree in Information Technology from RIT (all students enrolled as of 2016 receive a Bachelor of Science (B.S.) degree in Web and Mobile Computing). Studies at RIT Croatia are also accredited by the Croatian Ministry of Science, Education and Sports and meet the requirements of the Bologna Agreement. As a result, all students completing the four-year IT program will receive the degree title of stručni prvostupnik/prvostupnica (baccalaureus/ baccalaurea) inženjer/inženjerka informacijskih tehnologija.

In order to receive a Croatian degree from RIT Croatia students must have either a high school diploma issued by a Croatian high school or a high school diploma recognized by the Ministry of Science, Education and Sports of the Republic of Croatia.
6. PROGRAM OUTCOMES

IST grads thrive in what has been dubbed the Information Age – an age where technology impacts every part of our lives and rapidly expanding amounts of information are transferred at ever-increasing speeds. However, IST grads do more than simply thrive in this new age; they drive it.

We’re constantly thinking about the next social media platforms, electronic medical systems, ePublishing platforms, impactful apps and so much more.

The one bond that all of these technologies share is access to information. How do we store it, manipulate it, move it, transform it, or display it? How do we make it work for us?

And it’s not just how we deliver information today—it’s how we will deliver information tomorrow. The IST degrees all include foundational skills that prepare you for long-term success, by giving you experience with state-of-the-art technologies that will have employers seeking you out, and the support to make a difference.

Information is all around us and IST graduates are involved in every aspect of it. Name a tech buzzword and you’ll find our graduates involved in it: cloud computing, virtualization, big data, NoSQL, geospatial technologies.

But - and this is important - while IST graduates enjoy working with technology, they see it as a means to an end. Our graduates are about leveraging technology to deliver more information to more people in more ways. It’s not just the technology—it’s the combination of technology, information, and people.

The Five Pillars of IT

In order to “make things work” for people in today’s (and tomorrow’s) sophisticated computing environments, IT Professionals need core competencies in five essential areas:

- Programming and application development
- Web and mobile development
- Database management systems and applications
- Networking and system administration
- User-centered design and deployment, and human-computer interaction.

The fifth pillar focuses on the human element. This is the defining competency of the IT professional; what distinguishes us from, for example, a computer scientist. To be successful users’ advocates, we must see the world through their eyes. We must “be one” with our
users, and learn about the tasks they perform and the skills they possess. From this, we can then select, integrate and deploy technology that enhances their lives. This requires skills in information gathering, user-centered design, and deployment. It also attracts the student who cares more about how people use computers than about how computers work under the hood. Creativity, technology, and communication skills—these are the core competencies of IT.

Many students in our BS in IT program focus on one or two technical aspects that prepare them for careers in a variety of market niches like enterprise systems, web applications, or database management to name a very few of the many possibilities. Other students choose a broader path to prepare for “general practitioner” or “Jack of all trades” jobs that are prevalent in virtually every enterprise and organization. In short, the IT program at RIT offers the opportunity to specialize, but does not require that you do so. Whatever you want IT to be, IT will be.

Program Goals

- Graduates of the BS/IT program will be employable as IT professionals, able to secure positions primarily in (but not limited to) business and industry.
- Graduates of the BS/IT program will have appropriate foundational skills so that they may be lifelong learners in the IT field.
- Graduates of the BS/IT program will be prepared to work as team members and to rise to positions of leadership as necessary.
- Graduates of the BS/IT program will be prepared for further academic study and will be able to make contributions to the growing discipline of Information Technology.
# 7. List of Courses with Assigned Credits (Class and Credit Hours) and ECTS Points

## PER SEMESTER/YEAR LEVEL

### YEAR 1

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Computational Problem Solving in the Information Domain I

Course Description

This is the first course in the introductory programming sequence required for all Information Technology students. Topics include elementary data types, arithmetic and logical operations, control structures and error handling, methods, inheritance, reusability, input/output and an object-oriented programming design and implementation. Emphasis is placed on the development of problem-solving skills. Moderately large programming assignments are required.

Course objectives

General:
This course will provide students with the foundational skills necessary to do object-oriented programming. Emphasis is placed on program design methodologies and problem solving using commonly available development tools.

Specific:
Upon course completion, a student should be able to implement moderately large programming projects and should:

- Demonstrate the ability to configure a computer to create, compile, and run programs.
- Demonstrate the ability to write statements using different data types and operators that perform necessary operations based on the program’s requirements.
- Be able to analyze errors that occur when programs run and make changes based on this feedback. Be able to use sequence, selection and loop statements to control the execution of a program.
- Demonstrate the ability to create methods with or without return values that perform various operations, and invoke them.
- Be able to use utility Application Programmer Interface (API) classes such as Math and String, and use their methods to solve various problems.
- Demonstrate the ability to create a class by defining both attributes that describe the state of the class and methods that enforce Object Oriented Programming (OOP) encapsulation principles.
- Be able to define arrays, and determine when to create and use arrays.
- Demonstrate the ability to work with multiple classes and multiple instantiations of a class.
- Write object-oriented programs with multiple class files and create objects used between class files.
• Write event-driven programs using distinct listener class file objects and/or same class file listener objects
• Write object-oriented programs using class inheritance
• Write interface and abstract class files and use them in object-oriented programs
• Write object-oriented programs to read and write data using the java.io package
• Write classes with catch and throw exception class objects
• Write programs that pass and receive objects via an object method

**Grading**

Homework Assignments 20%
Labs 10%
Practical Exam 1 5%
Practical Exam 2 10%
Practical Exam 3 15%
Practical Exam 4 15%
Comprehensive Theory Exam 15%
Daily Quizzes 10%

**Class format:**
Class hours 4 Lab hours 0

**Course materials and textbooks:**
“Big Java: Compatible with Java 5, 6 and 7” by Cay S. Horstmann
Web and Mobile I

Course Description
This class provides an introduction to key Internet, web, and multimedia technologies, as well as familiarity with the Macintosh computer platform. Topics covered include computer-mediated communication, basic Internet applications such as telnet, FTP, and the WWW, basic digital image techniques, and web page development and publishing.

Course Objectives

General: This course provides a basic introduction to Internet technologies and web development. The Internet technology topics (UNIX, FTP, Telnet, email, protocols, etc.) provide a foundation for a variety of IT core courses. The web development and imaging topics provide an introduction to the multimedia and web development topic area within the department, and are a prerequisite for concentration-level courses in the computer-mediated experience area of the curriculum.

Specific Objectives
By the end of the quarter, students will have a working knowledge of:

- Key figures and events in the development of the Internet and the World Wide Web
- How to use Internet search engines to search for and retrieve information relevant to assignments and projects
- Internet protocols and tools, including SSH, SFTP, electronic mail, and conferencing
- How to perform basic file and directory management tasks in Unix environments
- The components of digital images, sound, and video, including file formats, resolution, color models, and compression methods
- How to use imaging programs (e.g., Photoshop) to create graphic elements for web pages, including logos and composite images
- How to create web pages using valid HTML and CSS
- How to identify and implement basic principles of graphic design, including contrast, alignment, proximity, repetition, and effective use of color and type
- How to use server technologies (e.g., Server-side Includes) for cross-browser issues
- Utilize the Macintosh operating environment and applications for web development tasks.
By the end of the quarter, students will be able to:

- Build a multi-page web site, including graphics and media
- Apply appropriate design principles to the design of a site
- Create or modify graphics for inclusion in a web site
- Mount their website on a designated server
- Work with a Macintosh operating environment comfortably

**Grading:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Project 1</td>
<td>10 points</td>
</tr>
<tr>
<td>Web Project 2</td>
<td>15 points</td>
</tr>
<tr>
<td>Web Project 3</td>
<td>20 points</td>
</tr>
<tr>
<td>Attendance, Participation, Homework</td>
<td>15 points</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>10 points</td>
</tr>
<tr>
<td>Midterm Practical</td>
<td>10 points</td>
</tr>
<tr>
<td>Final Exam</td>
<td>10 points</td>
</tr>
<tr>
<td>Final Practical</td>
<td>10 points + Pass/Fail</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100 points</strong></td>
</tr>
</tbody>
</table>

**Class format:** Class hours 3  Lab hours 0

**Course materials and textbooks:**

The following text is optional, but suggested for reference:


Watch the online video courses at linda.com provided by RIT Library: [http://library.rit.edu](http://library.rit.edu)

Below are some important links that you will use frequently throughout the quarter:

- HTML Validator:[http://validator.w3.org/](http://validator.w3.org/)
- CSS Validator:[http://jigsaw.w3.org/css-validator/](http://jigsaw.w3.org/css-validator/)
- Web Development Tutorials:[http://www.w3schools.com](http://www.w3schools.com)
New Media Design Digital Survey I

Course Description

This project-based course is an investigation of the computer as an illustrative, imaging, and graphical generation tool. It develops foundational design skills in raster and vector image creation, editing, compositing, layout and visual design for online production. Emphasis will be on the application of visual design organization methods and principles for electronic media. Students will create and edit images, graphics, layouts, and typography to form effective design solutions for online delivery.

Course objectives

In general, after completing this course, students should

- Introduce the fundamental creative principles for generating digital content and designs that communicates concise and impactful visual messages
- Understand the technical principles and tools of digital graphics
- Introduce principles and methods of visual organization, design and graphic analysis
- Develop skills that allow the student to decide the best options to generate and output content for digitally based imagery and design
- Develop visual solutions using observational drawing, sketching, image manipulations well as photographic techniques and imagination
- Develop solutions that reflect semiotic concerns of effective communication including aesthetic considerations, appropriate concept development and pragmatic concerns
- Understand the ethics and copyright issues of digital graphics.

Learning outcomes

- Demonstrate content creation methods using image and graphical manipulation
- Demonstrate effective design solutions using complex imagery, layout and typographical elements
- Evaluate the use and effectiveness of imaging, visual design solutions and aesthetic qualities
- Understand and display creative and conceptualization skills through research and documentation
- Demonstrate visual solutions and content creation for editorial design problems
- Apply visual design elements, principles, imagery and layouts to interactive creative problems
- Generate effective visual graphics for user interface elements and icons.
Grading:

In-Class Exam 30%
Project 1 15%
Project 2 10%
Project 3 15%
Participation & Attendance (15%)
Homework & Inspiration board (15%)

Class format: Class hours 2  Lab hours 3

Course materials and textbooks:

Online educational resources (i.e. Lynda.com, Cineversity.com, psdTuts.com)
Instructor Handouts and Video Tutorials
Computer with appropriate software and Internet access
Applicable textbooks (Beyond Photoshop, The Illustrator WoW, Teaching Design)
Discrete Mathematics

Course Description:

This course is an introduction to the topics of discrete mathematics, including number systems, sets and logic, relations, combinatorial methods, graph theory, regular sets, vectors, and matrices.

Goals of the Course:

- To provide students with knowledge of the mathematical concepts needed for understanding and analyzing programming.
- To discuss the many applications of mathematics to computer science and computer information systems.
- To stress the applications of theorem results in Information Technology.

Learning outcomes and associated assessment methods of those outcomes:

- Students will learn the mathematical concepts needed to understand and analyze programs:
  - Use notation of set theory and logic and elementary proof techniques, write proof by induction.
  - Use language of set theory to analyze relations, functions, graphs, and inverse functions.
  - Use Boolean algebra to analyze disjunctive and conjunctive normal forms and Karnaugh maps.
  - Use binary, octal and hexadecimal number representations.
- Students will learn about applications of mathematics to computer science and computer information systems.
- Students will understand the applications of theorem results in Information Technology.

Program or general education goals supported by this course:

- to develop students’ understanding of the mathematical framework that supports engineering, science, and applied mathematics.
- to develop a capacity for critical and analytical thinking.
- to develop an appropriate level of mathematical literacy and competency.
Grading

First Test    30 points
Second Test   30 points
Final test    30 points
Attendance    10 points
TOTAL        100 points

The A-F letter grade is computed according to the standard 100% system:
A = 91-100;   B = 80-89;   C = 70-79;   D = 60-69;   F = 0-59.

Class format:  Class hours 4  Lab hours 0

Course materials and textbooks:

Critical Thinking

Course Description

Critical thinking is a special sort of thinking. Already its etymological origin from the Greek word κρίνω (“distinguish”, “choose”, “decide”, “judge”) indicates that critical thinking is one of the most authentic and determining characteristics of humankind: it is a capacity to distinguish right from wrong, true from false, coherent from incoherent, orderly from chaotic, to judge something as valuable or worthless, important or only delusively important, etc. The skill to judge the quality of the information, opinions, and arguments that we are exposed to on a daily basis becomes crucial in order to succeed in any sort of business and endeavor. Critical thinking is necessary not only for all sorts of professional careers in which we have to communicate to other people, but also for a meaningful life in which we need to reflect on ourselves and other people around us. Communicating ideas, planning for the future, making decisions, analyses and problem solving are all better dealt with if we possess the skills that are headed under the title of critical thinking. Critical thinking is also indispensable as the foundation of democracy. A progress in democracy is impossible without informed citizens who know how to mentally process and evaluate information and are able to avoid prejudices and biases.

Course Objectives

The main purpose of the course is to learn how to explore arguments on all sides and to explain why someone rejects what one rejects before taking a position. This will enable students to figure out the consequences of various ideas, proposals, and problems, generate arguments for each side, and evaluate them. Thinking in principles, rather than case by case, or at least to recognize similar principles in different cases, even if they choose to take different positions on them, is strongly encouraged and recommended. The course aims to provide knowledge of practical application of analytical and creative thinking rather than a survey of methods, doctrines and leading ideas.

Learning Outcomes

The course will therefore have the following goals:

• to provide general introduction to logic;
• to find inconsistencies and mistakes in reasoning;
• to identify, evaluate, and construct arguments;
• to understand logical connections and relationship between ideas;
• to understand the relevance and weight of arguments and ideas;
• to analyze problems systematically;
• to evaluate the grounds for or against a decision;
• to evaluate and question one’s own beliefs and values.
Grading

Class participation: 10 pts
Four discussion papers: 28 pts
Four quizzes: 20 pts
Final quiz 20 pts
Final project 22 pts

Class format:

Class hours 3, Lab hours 0

Course materials and textbooks:

Possible resources (a narrower choice will be made according the availability of the material):

- Excerpts from various primary philosophical texts as a working material (from Plato to newspaper articles).
- Films: Rashomon, Twelve angry men, etc.
Course Description

YearOne Seminar is a course for first-year students designed to provide an introduction to college life and to support you as you adjust to your life at RIT Croatia. YearOne meets once per week for 12 weeks during the Fall semester. It includes lecturing, classroom discussions, and many guest speakers from the Zagreb, Dubrovnik, and Rochester campuses and will introduce you to many RIT resources.

Course objectives

- Vital resources: Introduce you to vital resources and services within the RIT community in order to navigate your way around in college life and to make most of your college experience.
- Academic preparedness: Familiarize with college level academic expectations and the resources to assist you in being academically successful.
- Inclusiveness: We address the issue of inclusiveness: Respecting and appreciating the complex and diverse perspectives within the RIT community. Increase your sense of belonging by providing opportunities for you to connect to one another and to the greater RIT community.
- Self-discovery: Explore and articulate your individual aspirations and values. Increase your awareness of your decision-making, of your daily choices, and resources that may help you.
- Engagement: You are expected to participate in campus events to integrate into the campus community (e.g. in Community Service Day, but also in party events like Fall BBQ or Holiday Auction).

Grading

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Informational Interview</td>
<td>10</td>
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<tr>
<td>LIV@RIT Library Tutorials</td>
<td>10</td>
</tr>
<tr>
<td>Community Needs Assessment</td>
<td>10</td>
</tr>
<tr>
<td>Myers Briggs Personality Test &amp; Reflection</td>
<td>10</td>
</tr>
<tr>
<td>Student Handbook Quiz</td>
<td>20</td>
</tr>
<tr>
<td>Coaching Appointment</td>
<td>20</td>
</tr>
<tr>
<td>Faculty Adviser Meeting</td>
<td>10</td>
</tr>
<tr>
<td>Class Participation</td>
<td>10</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Class format: Class hours 1 Lab hours 0

Course materials and textbooks: no
Introduction to Academic English

Course Description

In Introduction to Academic English, students increase their knowledge and control of grammatical structures in writing. This course focuses on the content, structure, and organization of sentences and paragraphs. Students will practice and improve their skills in the writing process, including prewriting, writing, revision, and editing techniques.

Course objectives

- further develop proficiency in using English in an academic setting
- develop basic academic writing skills
- develop various reading strategies
- develop language learning strategies

Learning outcomes

Students will

- be able to use correct word order in a sentence,
- be able to use the right collocations,
- be able to use idioms appropriately,
- be able to use basic tenses to write about past, present, and future events,
- be able to apply punctuation and capitalization rules,
- be able to write simple and compound sentences,
- be able to write short and clear paragraphs,
- be able to understand a variety of shorter texts,
- be able to distinguish the properties of academic style from less formal styles,
- be able to draft and revise their writing,
- understand the importance of academic honesty,
- receive feedback from their peers and give feedback to their peers.

Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiz 1</td>
<td>10</td>
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<tr>
<td>Quiz 2</td>
<td>10</td>
</tr>
<tr>
<td>Quiz 3</td>
<td>10</td>
</tr>
<tr>
<td>Quiz 4</td>
<td>10</td>
</tr>
<tr>
<td>Quiz 5</td>
<td>10</td>
</tr>
<tr>
<td>Quiz 6</td>
<td>10</td>
</tr>
<tr>
<td>Writing 1</td>
<td>15</td>
</tr>
<tr>
<td>Writing 2</td>
<td>15</td>
</tr>
<tr>
<td>Participation/Homework</td>
<td>10</td>
</tr>
<tr>
<td>Total:</td>
<td>100</td>
</tr>
</tbody>
</table>
Students need to acquire at least 60 points in order to pass the course.

**Class format:** 4 lectures per week

**Course materials and textbooks:**

Computational Problem Solving in the Information Domain II

Course Description

This is the second course in the introductory programming sequence required for all students majoring in Information Technology. Topics include GUI interface development, file I/O, traditional programming data structures, programming utilities and reusability, introductory project design and management concepts and other concepts as time permits. Emphasis is placed on the development of problem-solving skills. Large programming assignments are required.

Course Objectives

General:
The purpose of this course is to provide students with an introduction to the advanced concepts and skills needed to support the programming requirements of up-stream courses in the IST curriculum. Specifically, this course is intended to encourage students to continue to develop their problem solving skills, to begin building a “logical toolkit” of algorithms and data structures, and to understand the benefits of reusability. Students should also grasp the basics of program analysis, design and project management skills.

Contribution to Measurable Program Outcome(s):

- Program effectively within the student’s specialty area
- Apply a development life cycle to a problem
- Design and develop a software prototype
- Participate effectively as a team member and/or leader
- Practice user-centered design, development, and deployment
- Make effective oral presentations

Specific:

At the end of this course, a student should be able to implement moderately large programming projects both individually and in a team. Specifically, a student should:

- Demonstrate the ability to create graphical user interfaces based on a problem description.
- Demonstrate the creation and use of reusable objects.
- Demonstrate the use of the language-supplied data structure classes within a program.
- Be able to create, read and write character-based files, showing knowledge of the way
data is represented.

- Be able to create, read and write byte-based files, showing knowledge of the way data is represented.
- Determine when it is appropriate to use threads and demonstrate how to create a multi-threaded program.
- Demonstrate how to communicate between two machines using the network programming classes.
- Be able to design and implement a fairly large project as part of a team.

**Grading**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Lab assignments</td>
<td>10%</td>
</tr>
<tr>
<td>Practical Exam 1</td>
<td>10%</td>
</tr>
<tr>
<td>Practical Exam 2</td>
<td>15%</td>
</tr>
<tr>
<td>Practical Exam 3</td>
<td>10%</td>
</tr>
<tr>
<td>Final Theory Exam</td>
<td>5%</td>
</tr>
<tr>
<td>Mini Project</td>
<td>10%</td>
</tr>
<tr>
<td>Final Project</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Class format:**

Class hours 4 Lab hours 0

**Course materials and textbooks:**

“Big Java: Compatible with Java 5, 6 and 7” by Cay S. Horstmann
Web & Mobile II

Course Description

This course builds on the basics of web page development that are presented in Web & Mobile I and extends that knowledge to focus on theories, issues, and technologies related to the design and development of web sites. An overview of web design concepts, including usability, accessibility, information architecture, and graphic design in the context of the web will be covered. Introduction to web site technologies, including HTTP, web client and server programming, and dynamic page generation from a database also will be explored. Development exercises are required.

Prerequisites: ISTE-120 and ISTE-140 or equivalent course.

Course Objectives

Among others, following topics will be covered in this course:

- Web and Mobile Design, CSS Positioning and Responsive Design
- Information Architecture and the DOM
- CSS Frameworks
- JavaScript, JavaScript Libraries, Client-Side Form Validation
- Introduction to PHP, Server-Side Form Validation
- AJAX with JavaScript and PHP
- Database Connectivity, MySQL, phpMyAdmin

Learning Outcomes

By the end of this course, the student should be able to:

- Demonstrate proficiency in web site design, planning and documentation as part of a team.
- Use information design, graphics, and markup languages to create medium scale web sites.
- Use client side programming such as JavaScript and the document object model to create dynamic and interactive web pages.
- Use server side programming and databases to improve site performance, modularization, and separation of logic from data.
- Use the HTTP protocol to properly submit, validate and process user input data.
Grading

Attendance 5 %
Assignments (Homework & In-Class) 20 %
Individual Projects 30 %
Group Projects 30 %
Final Practical 15 %
TOTAL: 100 %

Class format: Class hours 3, Lab hours 0

Course Materials and Textbooks

This course does not require any textbooks. All required readings will be from digital media and will be linked or posted on myCourses.
Intro to Database & Data Modeling

Course Description
A presentation of the fundamental concepts and theories used in organizing and structuring data. Coverage includes the data modeling process, basic relational model, normalization theory, relational algebra, and mapping a data model into a database schema. Structured Query Language is used to illustrate the translation of a data model to physical data organization. Modeling and programming assignments will be required.

Course objectives

General course goals
Provide students with the foundation skill set required to organize and to structure data for subsequent computer processing. The skill set includes the ability to interpret Entity-Relationship data models, to translate an Entity-Relationship data model into a theoretical data model, to apply normalization theory.

Grading
Your final grade will be based on the work you submit, your demonstration of knowledge on exams, and your participation in the course.

Component Weight
Homework 40% (equal weighting)
Midterm Exam 15%
Midterm Practical 15%
Final Exam 15%
Final Practical 15%

Class format: Class hours 3  Lab hours 0

Course materials and textbooks:
There are no required textbooks for the course.
If you feel that a textbook would be a helpful resource for you, the following texts are suggestions for this course:

Applied Calculus

Course Description

This course is an introduction to the study of differential and integral calculus including the study of functions and graphs, limits, continuity, the derivative, derivative formulas, application of derivatives, the definite integral, the fundamental theorem of calculus, basic techniques of integral approximation, exponential and logarithmic functions, basic techniques of integration, an introduction to differential equations, and geometric series. Applications in business, management science and life science will be included with an emphasis on manipulative skills.

Course objectives

- To learn the basic definitions, concepts, rules, vocabulary, and mathematical notation of differential and integral calculus.
- To practice the necessary manipulative skills needed to solve problems involving differential and integral calculus.
- To provide a background in mathematics necessary to a study of university mathematics.

Learning outcomes

- Define basic concepts and notation of calculus
- Differentiate and integrate elementary functions
- Demonstrate the necessary skills required to solve problems in differential and integral calculus
- Use differential and integral calculus in solving applied problems

Grading

Three exams (3*20 = 60%)
Homework (15%);
Class participation (5%).
Final Exam (20%)
**Class format:** Class Hours 4 Lab hours 0

**Course materials and textbooks:**

Tan, Applied Calculus for the Managerial, Life, and Social Sciences, Brooks/Cole, Pacific Grove, CA.  
Free and open Precalculus materials:  
Stitz and Zeager, (Basic and Intermediate Algebra, College Algebra, Precalculus), 3th edition, Lulu.com  
Math and Statistics Resource Guide is available here: [http://infoguides.rit.edu/mathstat](http://infoguides.rit.edu/mathstat)  
- Computer packages and/or graphing calculator Using spreadsheet – Excel and/or Graphing Calculator TI- 83/84 Plus
Critical Reading and Writing

Course Description

Critical Reading & Writing is a one-semester, three-credit course designed to help students improve their critical reading and writing skills. Students will learn how to think critically and how to articulate, support, defend, and refute an argument. Furthermore, students will gain insight into the writing process, from choosing the right words, forming effective sentences, and organizing paragraphs, to planning, drafting, and revising their work. Special attention will be given to sentence grammar, clarity, and punctuation. By exploring different genres, students will learn how writers employ basic features and strategies of a genre to reflect different rhetorical purposes. All of this will help students develop their literacy practices that will be further strengthened in their First-Year Writing Seminar. The course also emphasizes the principles of intellectual property and academic honesty. Finally, peer review activities will help students learn how to critique their own and the work of others in order to become more independent and competent readers and writers.

Course objectives

- develop critical thinking
- develop argumentation
- develop critical reading skills
- develop writing skills

Learning outcomes

Students will
- be able to articulate, support, defend, and refute an argument,
- be able to critically assess different sources of information,
- be able to plan, draft, and revise their written work,
- be able to apply grammar and punctuation rules appropriately and effectively,
- be able to write clearly at sentence and text level and to avoid redundancy,
- be able to write texts from a range of genres and for different audiences,
- understand the importance of academic honesty,
- be able to paraphrase the ideas of other writers and cite carefully selected sources in order to avoid plagiarism,
- receive feedback from their peers and give feedback to their peers.
Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper 1 Draft</td>
<td>10</td>
</tr>
<tr>
<td>Paper 1</td>
<td>10</td>
</tr>
<tr>
<td>Paper 1 Peer Review</td>
<td>5</td>
</tr>
<tr>
<td>Paper 2 (In-class)</td>
<td>10</td>
</tr>
<tr>
<td>Paper 3 Draft</td>
<td>10</td>
</tr>
<tr>
<td>Paper 3</td>
<td>10</td>
</tr>
<tr>
<td>Paper 3 Peer Review</td>
<td>5</td>
</tr>
<tr>
<td>Grammar Test</td>
<td>5</td>
</tr>
<tr>
<td>Punctuation Test</td>
<td>10</td>
</tr>
<tr>
<td>Quiz</td>
<td>5</td>
</tr>
<tr>
<td>Participation/Homework</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Class format: 3 classes per week

Course materials and textbooks:

**Required texts and resources:**

**Suggested texts and resources:**
YEAR 2 – COURSE DESCRIPTIONS
Course Description

This course builds on the basics of web page development that are presented in Web & Mobile I and extends that knowledge to focus on theories, issues, and technologies related to the design and development of web sites. An overview of web design concepts, including usability, accessibility, information architecture, and graphic design in the context of the web will be covered. Introduction to web site technologies, including HTTP, web client and server programming, and dynamic page generation from a database also will be explored. Development exercises are required.

Prerequisites: ISTE-120 and ISTE-140 or equivalent course.

Course Objectives

Among others, following topics will be covered in this course:

- Web and Mobile Design, CSS Positioning and Responsive Design
- Information Architecture and the DOM
- CSS Frameworks
- JavaScript, JavaScript Libraries, Client-Side Form Validation
- Introduction to PHP, Server-Side Form Validation
- AJAX with JavaScript and PHP
- Database Connectivity, MySQL, phpMyAdmin

Learning Outcomes

By the end of this course, the student should be able to:

- Demonstrate proficiency in web site design, planning and documentation as part of a team.
- Use information design, graphics, and markup languages to create medium scale web sites.
- Use client side programming such as JavaScript and the document object model to create dynamic and interactive web pages.
- Use server side programming and databases to improve site performance, modularization, and separation of logic from data.
- Use the HTTP protocol to properly submit, validate and process user input data.
Grading

Attendance 5 %
Assignments (Homework & In-Class) 20 %
Individual Projects 30 %
Group Projects 30 %
Final Practical 15 %
TOTAL: 100 %

Class format: Class hours 3, Lab hours 0

Course Materials and Textbooks

This course does not require any textbooks. All required readings will be from digital media and will be linked or posted on myCourses.
Designing the User Experience

Course Description

The user experience is an important design element in the development of interactive systems. This course presents the foundations of user-centered design principles within the context of human-computer interaction (HCI). Students will explore and practice HCI methods that span the development lifecycle from requirements analysis and creating the product/service vision through system prototyping and usability testing. Leading edge interface technologies are examined. Group-based exercises and design projects are required.

Course objectives

<table>
<thead>
<tr>
<th>Requirements Analysis</th>
<th>Diffusion of Innovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methodologies</td>
<td>Design life cycles</td>
</tr>
<tr>
<td>Usability Goals</td>
<td>Cognitive Psychology</td>
</tr>
<tr>
<td>Personas</td>
<td>User Profiles</td>
</tr>
<tr>
<td>Task Analysis and decomposition</td>
<td>Heuristic Evaluations</td>
</tr>
<tr>
<td>Universal/Global/Accessibility/Assistive Technologies</td>
<td>Mobile/Pervasive</td>
</tr>
<tr>
<td>GUI design</td>
<td>Usability Testing</td>
</tr>
</tbody>
</table>

Learning outcomes

<table>
<thead>
<tr>
<th>Upon Successful completion of this course the student will be able to:</th>
<th>Assessment Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze the usability of consumer products and determine barriers that interfere with product use</td>
<td>Written assignments, class exercises</td>
</tr>
<tr>
<td>Distinguish among the types of methods for gathering information for requirements.</td>
<td>Written Assignments, Exam and project</td>
</tr>
<tr>
<td>Analyze and interpret the data collected to develop appropriate requirements to be used in product design.</td>
<td>Projects and design document</td>
</tr>
<tr>
<td>Develop and use personas and task scenarios to formulate and write usability goals</td>
<td>In-class exercises, and projects</td>
</tr>
<tr>
<td>Iteratively design and prototype an interactive system.</td>
<td>In-class exercises, and projects</td>
</tr>
<tr>
<td>Perform and document a heuristic evaluation.</td>
<td>In class exercises and Written assignment.</td>
</tr>
<tr>
<td>Work effectively in small teams.</td>
<td>In Class Exercises and Group projects.</td>
</tr>
<tr>
<td>Communicate effectively – written, oral, listening, non-verbal cues. Assessed through written assignments and presentations.</td>
<td>In-class exercises, written assignments, and projects.</td>
</tr>
</tbody>
</table>
Grading

Team Project (assessed at 3 intervals during the semester) 35%
Peer evaluations (assessed at 3 intervals) 10%
Final report documentation and presentation
(presented and submitted during the Final Exam Period) 20%
Individual and Class Assignments (about 10 total) 20%
Video Assignment (1 assignment) 5%
Class readiness and participation 10%
**Total** 100%

**Class format:** Class hours 3 Lab hours 0

**Course materials and textbooks:**


All other reading assignments will be available free at Books 24 x 7 through Wallace Library.
Networking Essentials for Developers

Course Description

This is a course in the basics of network communication for software developers. Topics will include the OSI 7-layer model and its realization in the TCP/IP protocol stack. Students will also learn about naming and name resolution as it is used in the internet, plus the basics of routing and switching. The focus in all of this will be on an analysis of how name resolution, routing and switching operate from the developer’s perspective. The specifics of how the socket transport layer appears to the programmer and operates will be a key topic. Finally, an overview of authentication mechanisms and number of examples of the security vulnerabilities of existing communication protocols will be provided to instruct students on the inherent risks of communication via the internet. (Pre-requisite: one year of programming in a high level language)

Course Objectives

This course will provide students with the network knowledge needed to develop and design software applications. At the end of the course, students should be conversant in:

- Network Communications
  - TCP/IP and OSI models
    - Why do we have them?
    - What are they used for?
    - What are the security implications?
  - Physical and Data link communications
    - How do I get data from point A to point B?
    - How do I know it is from this device?
    - How do I send it to everyone or a specific person?
  - Network and Transport Layers
    - What is an IP address?
    - What is DHCP and DNS? Why do we use it? How does it impact my coding?
    - How do we use it?
    - What is private versus public IP addresses?
    - What about firewalls and communications?
    - What are port numbers and sockets? How do I create code that allows for communication that is secure or direct?
  - Communications
    - How do I know how the data is being processed or communicating?
What affect does routing over multiple network topologies have on communications?
How does on demand (client) versus server (passive listening) work when sending and receiving data?

Grading

Grading will be based on the quality of submitted work as follows:

Submission
Midterm Exam  25 points
Final Exam  25 points
Quizzes (5 each)  20 points
Homework #1  15 points
Homework #2  15 points
TOTAL  100 points

Class format:  Class hours  3  Lab hours 0

Course materials and textbooks:

• Networking Essentials (3rd Edition) - Jeffrey S. Beasley, PiyasaNilkaew
FYW: Writing Seminar

Course Description

This class is an intensive introduction to researched writing. Students will develop proficiency in analytical writing, critical reading and critical thinking, by writing within a variety of contexts and with a variety of purposes. Students will develop writing strategies and research skills that they will draw on throughout their academic careers. There will be particular attention to the writing process including an emphasis on teacher-student conferencing, self-assessment, class discussion, peer review, formal and informal writing, research and revision.

Course objectives

- to have students learn appropriate writing process strategies: pre-writing, composing and revising, editing, and consideration of audience and purpose
- to teach students to employ critical and creative thinking skills for self-assessment and reflection on the writing process
- to provide students with the appropriate grammatical and mechanical structures to support the development of their writing and to successfully express meaning
- to have students read advanced college-level texts for the purposes of discussion and composition
- to teach students to collaborate with peers and learn how to supply effective feedback
- to provide students with the skill for using a range of technologies to address different audiences

Learning outcomes

Students will:

- practice the appropriate writing process strategies: pre-writing, composing and revising, editing, and consideration of audience and purpose
- employ critical and creative thinking skills for self-assessment and reflection on the writing process
- apply the appropriate grammatical and mechanical structures to support the development of their writing and to successfully express meaning
- read advanced college-level texts for the purposes of discussion and composition
- collaborate with peers and learn how to supply effective feedback
- use a range of technologies to address different audiences
### Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short proposal</td>
<td>10</td>
</tr>
<tr>
<td>Summary</td>
<td>10</td>
</tr>
<tr>
<td>Working Bibliography</td>
<td>10</td>
</tr>
<tr>
<td>Annotated Bibliography</td>
<td>15</td>
</tr>
<tr>
<td>Draft</td>
<td>15</td>
</tr>
<tr>
<td>Final draft</td>
<td>20</td>
</tr>
<tr>
<td>Participation/Homework</td>
<td>10</td>
</tr>
<tr>
<td>Attendance</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The A-F letter grade is computed according to the standard 100% system: A = 91-100; B = 80-89; C = 70-79; D = 60-69; F = 0-59.

**Class format:** Class hours 3 Lab hours 0

**Course materials and textbooks:**


Beginning Spanish I

Course description

This course introduces the Spanish language and the culture of Hispanic countries to beginners, and provides a basic foundation in all skills in Spanish (speaking, listening, reading, writing, culture) through intensive practice in a variety of media. Language work progresses from autobiographical information, through the present tense, to preliminary work in the past tenses. Students must take placement exam if this is their first RIT class in Spanish and they have some prior study of Spanish. Class 4, Credit 4 (F)

Course Objectives

The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in Spanish as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in Spain and Spanish speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like there today.

Learning Outcomes

By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 Spanish words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in Spanish speaking countries.

Grading

The following categories will determine your grade:

Homework and/or Other Written Assignments 10 points
Quizzes (3 quizzes) (3 x 20) 60 points
Oral In-class Examination (2 x 5) 10 points
Final Oral Exam 10 points
Class Absences and Class Participation 10 points
TOTAL 100 points

Class format: Class hours 4  Lab hours 0
Course materials and textbooks:

- PLAZAS, Lugar de encuentros, Robert Hershberger, Susan Navey-Davis, Guiomar Borrás Álvarez, Fourth edition, HEINLE CENGAGE Learning

Additional books:

- Keith Chambers; Beginner's Spanish Grammar; teach Yourself Books (or any other grammar of the Spanish language)
Beginning German I

Course Description
This is the first course in a two-course sequence. The sequence provides students without prior exposure to the language with a sound basis for learning German as it is used today in its spoken and written forms. The goal of the sequence is proficiency in communication skills with an emphasis on oral proficiency. The sequence also acquaints students with contemporary culture and life in the German-speaking countries. Students must take a placement exam if this is their first RIT class in German and they have some prior study of German. Class 4, Credit 4 (F)

Course Objectives
The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in German as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in German speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like there today.

Learning Outcomes
By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 German words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in German speaking countries.

Grading
The following categories will determine your grade:

Homework and/or Other Written Assignments 10 points
Quizzes (3 quizzes) (3 x 20) 60 points
Oral In-class Examination (2 x 5) 10 points
Final Oral Exam 10 points
Class Absences and Class Participation 10 points
TOTAL 100 points

Class format: Class hours 4 Lab hours 0
Course materials and textbooks:

- DEUTSCH HEUTE, Premium Website
- DEUTSCH HEUTE, Student Activities Manual
- http://dict.tu-chemnitz.de/ (Beolingus-Your Online Dictionary)
Beginning Italian I

Course Description

This is the first course in a two-course sequence. The sequence provides students without prior exposure to the language with a sound basis for learning Italian as it is used today in its spoken and written forms. The goal of the sequence is proficiency in communication skills with an emphasis on oral proficiency. The sequence also acquaints students with contemporary culture and life in the Italian-speaking countries. Students must take placement exam if this is their first RIT class in Italian and they have some prior study of Italian. Class 4, Credit 4 (F)

Course Objectives

The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in Italian as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in Italy and Italian speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like there today.

Learning Outcomes

By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 Italian words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in Italian speaking countries.

Grading

The following categories will determine your grade:

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework and/or Other Written Assignments</td>
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</tr>
<tr>
<td>Quizzes (3 quizzes) (3 x 20)</td>
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</tr>
<tr>
<td>Oral In-class Examination (2 x 5)</td>
<td>10 points</td>
</tr>
<tr>
<td>Final Oral Exam</td>
<td>10 points</td>
</tr>
<tr>
<td>Class Absences and Class Participation</td>
<td>10 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100 points</strong></td>
</tr>
</tbody>
</table>

Class format: Class hours 4 Lab hours 0
Course materials and textbooks:


Additional course material:

- Progetto italiano 1 – S. Magnelli, T. Marin – Edilingua
- Italian Grammar in Practice - Susanna Nocchi - Alma Edizioni Firenze
- Ecco! Grammaticaitaliana - Claudio Manella - Progetto Lingua Firenze
- Grammaticaessenziale della lingua italiana – Marco Mezzadri - Guerra edizioni Perugia
- Cantachetipassa, impararel’italiano con le canzoni, Ciro Massimo Naddeo e Giuliana Trama,
- ALMA Edizioni, 2000
- Cinema italiano, imparal’italiano con i film, ALMA Edizioni, Firenze, a cura di Ciro Massimo Naddeo e Alessandro De Giuli, EdizioneRedux
Beginning Russian I

Course Description
This is the first course in a two-course sequence. The sequence provides students without prior exposure to the language with a sound basis for learning Russian as it is used today in its spoken and written forms. The goal of the sequence is proficiency in communication skills with an emphasis on oral proficiency. The sequence also acquaints students with contemporary culture and life in the Russian-speaking countries. Students must take a placement exam if this is their first RIT class in Russian and they have some prior study of Russian. Class 4, Credit 4 (F)

Course Objectives
The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in Russian as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in Russian speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like there today.

Learning Outcomes
By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 Russian words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in Russian speaking countries.

Grading
The following categories will determine your grade:

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework and/or Other Written Assignments</td>
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</tr>
<tr>
<td>Quizzes (3 quizzes) (3 x 20)</td>
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</tr>
<tr>
<td>Oral In-class Examination (2 x 5)</td>
<td>10 points</td>
</tr>
<tr>
<td>Final Oral Exam</td>
<td>10 points</td>
</tr>
<tr>
<td>Class Absences and Class Participation</td>
<td>10 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100 points</strong></td>
</tr>
</tbody>
</table>
Class format: Class hours 4 Lab hours 0

Course materials and textbooks:

„Golosa“ – A Basic Course in Russian by Richard Robin et al., fifth edition, Pearson

„Golosa“ – Student Activity Book

„Golosa“ - CDs

http://www.gwu.edu/~slavic/golosa/golosa.htm
Beginning French I

Course description
This course introduces the French language and the culture of French speaking countries to beginners, and provides a basic foundation in all skills in French (speaking, listening, reading, writing, culture) through intensive practice in a variety of media. Language work progresses from autobiographical information, through the present tense, to preliminary work in the past tenses. Students must take placement exam if this is their first RIT class in French and they have some prior study of French. Class 4, Credit 4 (F)

Course Objectives
The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in French as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in France and French speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like there today.

Learning Outcomes
By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 French words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in French speaking countries.

Grading
The following categories will determine your grade:

Homework and/or Other Written Assignments 10 points
Quizzes (3 quizzes) (3 x 20) 60 points
Oral In-class Examination (2 x 5) 10 points
Final Oral Exam 10 points
Class Absences and Class Participation 10 points
TOTAL 100 points

Class format: Class hours 4  Lab hours 0
Course materials and textbooks:

**Horizons, 6th edition** by Manley, Smith, McMinn, and Prévost

**Horizons, Workbook/Lab Manual**—available online via QUIA

Text Audio CDs & Resources available through the Heinle Learning Center (iLrn)

Additional course material:

**Les 500 Exercices de phonétique A1/A2** – Hachette, 2009

Foundations of Mobile Design

Course Description

This course is an introduction to designing, prototyping, and creating applications and Web Apps for mobile devices. These devices include a unique set of hardware and communications capabilities, incorporate novel interfaces, are location aware, and provide persistent connectivity. Topics covered include user interaction patterns, connectivity, interface design, software design patterns, and application architectures. Programming projects are required.

Prerequisite: ISTE-240.

Course objectives

As the percentage of people utilizing mobile devices in everyday life and to access Internet rapidly increases, specific design and implementation considerations need to be taken into account when developing applications and Web Apps for mobile devices. In this course, students will study various approaches and development environments for designing, prototyping, implementing, deploying and testing mobile device software. Advantages and disadvantages of each approach and environment will be discussed followed by hands-on student experience through projects, in-class and homework exercises. Particular attention will be paid to mobile interaction patterns and user interface design as well as to employment of APIs and cross-platform development tools.

Learning outcomes

At the successful completion of this course, the student will be able to:

- Differentiate between the design and capabilities of mobile application, web apps and desktop applications
- Utilize available development environments to design, code, test and deploy hybrid mobile applications
- Create effective mobile interfaces utilizing accepted interface conventions
- Create mobile applications utilizing multiple types of digital media
- Create mobile applications that consume web services, and post application data to a data store

Grading

- Final Project Proposal 10%
- Final Project Design Prototype 10%
- Final Project Implementation 15%
- Mid Semester Exam 15%
- End of Semester Exam 25%
• Homework Exercises (Small Apps) 25%

**Class format:**

Class 3 hours, Lab 0 hours

**Course materials and textbooks:**

None required.
Database Connectivity and Access

Course Description

In this course, students will build applications that interact with databases. Through programming exercises, students will work with multiple databases and programmatically invoke the advanced database processing operations that are integral to contemporary computing applications. Topics include the database drivers, the data layer, connectivity operations, security and integrity, and controlling database access.

Prerequisites: ISTE-120, ISTE-121, ISTE-230.

Course objectives

This course is part of the BS/IT core course offerings that provide fundamental IT skills. Specifically, this course covers foundation database connectivity content for multi-tier architectures.

Learning outcomes

At the end of the successfully completed course students should be able to:

- Apply basic object-oriented programming (OOP) techniques in the development of database-driven applications; evaluated by course lab exercises and/or practicums.
- Implement fully functional database interfaces utilizing various data access APIs such as JDBC or ODBC, for single server, multi-server, and/or multi-client networks; evaluated by course lab exercises and/or practicums.
- Connect to, and issue queries against, different DBMSs; evaluated by course lab exercises, and/or practicums.
- Discuss and implement various standard data access techniques designed to improve DBMS connectivity and access performance; evaluated by in-class discussions, course lab exercises, written reports, practicums, and/or course examinations.
- Compare and contrast similarities and differences between various popular data access APIs, such as DAO, RDO, ADO, ODBC, JDBC, etc.; evaluated by in-class discussions, homework exercises, written reports, and/or course examinations.
Grading

Exercises 20%
Midterm Exams 30%
Final Exam 15%
Project 30%
In Class Participation 5%

Class format:

Class 3 hours, Lab 0 hours

Course materials and textbooks:

None required.
Client Programming

Course Description

The goal of this course is to explore the issues involved in the design and implementation of client-side programming – both web and desktop application based. Topics include standards, browser and Document Object Model manipulation issues, design and deployment of both Web-based and desktop-based clients targeting multiple browsers, operating systems, and platforms. Use of specific Application Programming Interfaces and libraries where appropriate. The course will focus in the design, development, and implementation of usable, effective clients and client interfaces, both desktop and mobile, using multiple technologies.

This course will explore the analysis, design, development, and implementation of client-side programming in the context of Internet technologies, mobile devices, Web-based client systems and desktop applications. Students will learn to design and build usable and effective interactive systems, clients, and interfaces. Key features addressed will include browser and platform compatibility, object reusability, bandwidth and communications issues, development environments, privacy and security, and related technologies and APIs. Programming is required.

Grading

<table>
<thead>
<tr>
<th>Grade item</th>
<th>Percent of overall grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual assignments: the first will be JavaScript (20% of the final grade), the second jQuery (15% of the final grade), and the last is C# (15% of the final grade)</td>
<td>50%</td>
</tr>
<tr>
<td>The mid-term practical will be based upon the in-class exercises, what we build in class together, and the readings. The practical will be held during the 8th week.</td>
<td>25%</td>
</tr>
<tr>
<td>The final examination will cover the second half of the course only and will be held during the classes published final time during week 16.</td>
<td>25%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
</table>

Class format: Class hours 3 Lab hours 0
**Course materials and textbooks:** The following required texts will be available at the bookstore, or via online booksellers such as amazon.com and bn.com:

- JavaScript Essential Training via Wallace Library (online)

In addition to the text(s), online readings might be assigned in class.
Software Design Principles and Patterns

Course Description
Quality software designs and architectures reflect software engineering principles that represent best contemporary practice. This course focuses on explicating these fundamental principles, examining a set of design and architecture patterns that embody the principles, and applying patterns appropriate to a design problem in a given context. Restricted to IST majors only.

Prerequisites: ISTE-240 or equivalent course. Co-requisite: ISTE-340 or equivalent course.

Class Format: Lecture/Lab Hours 3, Credits 3

Course Objectives
Among others, following topics will be covered in this course:
• Describe the principles that undergird quality software design.
• Describe, compare and contrast common design and architecture patterns as embodiments of design principles.
• Design and construct software systems that apply selected patterns appropriate to the systems functional and quality objectives.
• Analyze proposed and existing design quality with respect to the key principles and the patterns employed.

Learning Outcomes
By the end of this course, the student should be able to:
• Select and apply appropriate design patterns. Assessed by projects, exams.
• Analyze designs in terms of contemporary design principles. Assessed by homework, exams.
• Develop software within the context of architectural styles. Assessed by projects.
• Improve existing systems by refactoring in the context of patterns. Assessed by projects, exams.
### Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Work</td>
<td>55%</td>
</tr>
<tr>
<td>- Week 1-2 Activities</td>
<td>5%</td>
</tr>
<tr>
<td>- Midterm Exam</td>
<td>20%</td>
</tr>
<tr>
<td>- Final Exam</td>
<td>25%</td>
</tr>
<tr>
<td>- In-Class Participation</td>
<td>5%</td>
</tr>
<tr>
<td>Individually Adjusted Team Work</td>
<td>45%</td>
</tr>
<tr>
<td>- Week 3-5 Activities</td>
<td>5%</td>
</tr>
<tr>
<td>- Week 7-15 Activities</td>
<td>40%</td>
</tr>
</tbody>
</table>

### Course Materials and Textbooks

This course does not require any textbooks. All required readings will be from digital media and will be linked or posted on myCourses.
**Course description**

This course continues the basic grammatical structures, vocabulary and situations of first-year Spanish. Beginning Spanish 2 continues work in the past tenses and includes work on the subjunctive mood, plus the future and conditional tenses. Students work on paragraph-length speech and writing, and move toward readiness for conversation and composition. (MLSP-201 Beginning Spanish I or equivalent proficiency) Class 4, Credit 4 (S)

**Course Objectives**

The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in Spanish as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in Spanish speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like in Spanish speaking countries today.

**Learning Outcomes**

By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 Spanish words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in Spanish speaking countries.

**Grading**

- Homework and/or Other Written Assignments 10 points
- Quizzes (3 quizzes) (3 x 20) 60 points
- Oral In-class Examination (2 x 5) 10 points
- Final Oral Exam 10 points
- Class Absences and Class Participation 10 points
- **TOTAL** 100 points
**Class format:**  Class hours 4  Lab hours 0

**Course materials and textbooks:** PLAZAS, Lugar de encuentros, Robert Hershberger, Susan Navey-Davis, Guiomar Borrás Álvarez, Fourth edition, HEINLE CENGAGE Learning

**Additional books:** Keith Chambers; Beginner's Spanish Grammar; teach Yourself Books (or any other grammar of the Spanish language)
Beginning German II

Course Description

This is the second course in a two-course sequence. The sequence provides students without prior exposure to the language with a sound basis for learning German as it is used today in its spoken and written forms. The goal of the sequence is proficiency in communication skills with an emphasis on oral proficiency. The sequence also acquaints students with contemporary culture and life in the German-speaking countries. (MLGR-201 Beginning German I or equivalent; students must take the placement exam if this is their first RIT German class, and they have some prior study of German) Class 4, Credit 4 (S)

Course Objectives

The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in German as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in German speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like in German speaking countries today.

Learning Outcomes

By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 German words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in German speaking countries.

Grading

Homework and/or Other Written Assignments 10 points
Quizzes (3 quizzes) (3 x 20) 60 points
Oral In-class Examination (2 x 5) 10 points
Final Oral Exam 10 points
Class Absences and Class Participation 10 points
TOTAL 100 points

Class format: Class hours 4 Lab hours 0
Course materials and textbooks:

- DEUTSCH HEUTE, INTRODUCTORY GERMAN, Tenth Edition,
- Moeller, Adolph, Hoecherl-Alden, Berger, Heinle, Cengage Learning
- DEUTSCH HEUTE, Premium Website
- DEUTSCH HEUTE, Student Activities Manual

Additional books

- German College Dictionary, Harper-Collins, Second Edition (or any other dictionary of the German language)
- Grammar of the German language
- http://dict.tu-chemnitz.de/ (Beolingus-Your Online Dictionary)
Beginning Italian II

Course Description

This is the second course in a two-course sequence. The sequence provides students without prior exposure to the language with a sound basis for learning Italian as it is used today in its spoken and written forms. The goal of the sequence is proficiency in communication skills with an emphasis on oral proficiency. The sequence also acquaints students with contemporary culture and life in the Italian-speaking countries. (MLIT-201 Beginning Italian I or equivalent; students must take the placement exam if this is their first RIT Italian class, and they have some prior study of Italian) Class 4, Credit 4 (S)

Course Objectives

The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in Italian as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in Italian speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like in Italy today.

Learning Outcomes

By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 Italian words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in Italian speaking countries.

Grading

Homework and/or Other Written Assignments 10 points
Quizzes (3 quizzes) (3 x 20) 60 points
Oral In-class Examination (2 x 5) 10 points
Final Oral Exam 10 points
Class Absences and Class Participation 10 points

TOTAL 100 points

Class format:  Class hours  4  Lab hours 0
Course materials and textbooks:


Additional course material:

- Progetto italiano 1 – S. Magnelli, T. Marin – Edilingua
- Italian Grammar in Practice - Susanna Nocchi - Alma Edizioni Firenze
- Ecco! Grammaticaitaliana - Claudio Manella - Progetto Lingua Firenze
- Grammaticaesenziale dell’italiana – Marco Mezzadri - Guerra edizioni Perugia
- Cantachetipassa, imparare l’italiano con le canzoni, Ciro Massimo Naddeo e Giuliana Trama,
- ALMA Edizioni, 2000
- Cinema italiano, impararl’italiano con i film, ALMA Edizioni, Firenze, a cura di Ciro Massimo Naddeo e Alessandro De Giuli, Edizione Redux
Beginning Russian II

Course Description

This is the second course in a two-course sequence. The sequence provides students without prior exposure to the language with a sound basis for learning Russian as it is used today in its spoken and written forms. The goal of the sequence is proficiency in communication skills with an emphasis on oral proficiency. The sequence also acquaints students with contemporary culture and life in Russian-speaking countries. (MLRU-201 Beginning Russian I or equivalent; students must take the placement exam if this is their first RIT Russian class, and they have some prior study of Russian) Class 4, Credit 4 (S)

Course Objectives

The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in Russian as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in Russian speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like in Russian speaking countries today.

Learning Outcomes

By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 Russian words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in Russia.

Grading

Homework and/or Other Written Assignments 10 points
Quizzes (3 quizzes) (3 x 20) 60 points
Oral In-class Examination (2 x 5) 10 points
Final Oral Exam 10 points
Class Absences and Class Participation 10 points
TOTAL 100 points

Class format: Class hours 4 Lab hours 0
Course materials and textbooks:

„Golosa“ – A Basic Course in Russian by Richard Robin et al., fifth edition, Pearson

„Golosa“ – Student Activity Book

„Golosa“ - CDs

http://www.gwu.edu/~slavic/golosa/golosa.htm
Beginning French II

Course description
This is the second course in a two-course sequence. The sequence provides students without prior exposure to the language with a sound basis for learning French as it is used today in its spoken and written forms. The goal of the sequence is proficiency in communication skills with an emphasis on oral proficiency. The sequence also acquaints students with contemporary culture and life in French-speaking countries. (MLFR-201 Beginning French I or equivalent proficiency) Class 4, Credit 4 (S)

Course Objectives
The primary aim of this course is to provide students with a sound basis for learning to communicate effectively and accurately in French as it is spoken and written today. Practice is given in all four basic skills - listening, speaking, reading, and writing – with many opportunities for student-student interaction and self-expression in realistic situations.

A second important aim of the course is to introduce students to contemporary life and culture in French speaking countries. The dialogues, readings, and cultural notes have been written to depict what life is like in French speaking countries today.

Learning Outcomes
By the end of the course, students should be able to use with confidence the basic structures of the language, to have mastered an active vocabulary of approximately 1,200 French words and to recognize many more words in speech and writing. They should have mastered the basic features of the sound system and be able to communicate orally and in writing on everyday topics. Students should also have gained an appreciation for varied aspects of culture in French speaking countries.

Grading
Homework and/or Other Written Assignments 10 points
Quizzes (3 quizzes) (3 x 20) 60 points
Oral In-class Examination (2 x 5) 10 points
Final Oral Exam 10 points
Class Absences and Class Participation 10 points
TOTAL 100 points

Class format: Class hours 4 Lab hours 0

Course materials and textbooks:

Horizons, 6th edition by Manley, Smith, McMinn, and Prévost

Horizons, Workbook/Lab Manual—available online via QUIA
Text Audio CDs & Resources available through the Heinle Learning Center (iLrn)

Additional course material:

Les 500 Exercices de phonétique A1/A2 – Hachette, 2009

YEAR 3 – COURSE DESCRIPTIONS
Server Programming

Course Description
This course provides in-depth work in server-side programming. Students will develop dynamic, data centric web pages and systems, and server-side information services that will be available to clients implemented in a variety of software technologies. Topics include XML parsing, generation, and consumption; web configuration and security; design patterns; web service structures, and application security. Programming projects are required.

Prerequisites: SWEN-383 and ISTE-340 or equivalent courses.

Class Format: Lecture/Lab Hours 3, Credits 3

Course Objectives
Among others, following topics will be covered in this course:

- For creating web pages and systems:
  - Server-side programming
  - Database creation, access, and manipulation review
  - Libraries, building and using
  - XML parsing, generation and consumption
  - Configuration and security
  - GET, POST, PUT, DELETE processing
  - Patterns and architecture
  - Command line scripting

- For serving up data:
  - Basic RESTful service structure and construction
  - Mid Tier
  - Proxies
  - Business Layer Implementation
  - Service Layer Implementation
  - OOP PHP
  - Application security

Learning Outcomes
By the end of this course, the student should be able to:

- Describe and use web protocols
- Analyze server language strengths and weaknesses
- Build a medium-scale dynamic Web sites, applications and systems
- Use server-side technologies to consume disparate information systems
- Use server-side technologies to create information systems that can be consumed by different clients and servers
- Use server-side languages to retrieve and update data from files, file structures, and databases.
Grading

Projects 60%
Final Exam 20%
Participation 10%
Exercises 10%

Course Materials and Textbooks

This course does not require any textbooks. All required readings will be from digital media and will be linked or posted on myCourses.
Application Development Practices

Course Description

In this course, students will gain experience with the processes, practices, and tools professional developers use to deliver robust and maintainable applications. Students will apply these practices and tools to build smaller-scale production-quality applications and systems. Topics include development life cycles, version control, test bed development and use, build utilities, error handling, deployment tools, and documentation.

Prerequisites: Completion of one of the following programming courses is required: ISTE-101, ISTE-121 or equivalent, ISTE-200, ISTE-202, IGME-102, IGME-106, 4080-223, 4080-231, CSCI-142, CSCI-242, CSCI-243, 4003-243 or 4003-334.

Course Objectives

Among others, following topics will be covered in this course:

- Development Methodologies, Diagramming Development
- Version Control
- Build Utilities, Testing
- Error Handling, Logging; Bug Tracking, Profiling
- Generic Code, Data-driven Code
- Reverse Engineering
- Efficient Code
- Application Deployment, Help Systems, Documentation

Learning Outcomes

By the end of this course, the student should be able to:

- Compare and contrast development methodologies.
- Describe and use techniques for error handling.
- Use appropriate tools to improve software development, performance, and deployment.
- Explain the concerns when designing software for maintenance.
- Develop documentation and functions to assist both developers and users.

Grading

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<th>Component</th>
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<tr>
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<tr>
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<td>Exams</td>
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</table>
**Class Format:** Lecture/Lab Hours 3, Credits 3

**Course Materials and Textbooks**

This course does not require any textbooks. All required readings will be from digital media and will be linked or posted on myCourses.
Introduction to Psychology

Course Description
Introduction to the scope and methodology of psychology. Provides a survey of basic concepts, theories, and research methods. Topics include: thinking critically with psychological science; neuroscience and behavior; sensation and perception; learning; memory; thinking, language, and intelligence; personality; psychological disorders and therapy; and social psychology.

Goals of the Course

- Introduce students to the field of psychology, its basic concepts, theories, research methods, and contributions to the understanding of human behavior.
- Teach students to think as scientists and learn to apply introductory principles, concepts, and terms to everyday life.
- Develop critical thinking and problem solving skills as they relate to the application of psychology and its principles.
- Provide a foundation that will enable students to understand, and benefit from, advanced courses in psychology.

Course Learning Outcomes and Associated Assessment Methods

- Understand core concepts and controversies from each of the 10 topic areas (exams, research report, in-class activities, discussions)
- Understand relationships between individuals, the environment, cognition, and behavior (exams, research report, in-class activities, discussions)
- Be familiar with the major critical debates in psychology and the evidence used by the different sides of each debate (exams, research report, in-class activities, discussions).
- Demonstrate the ability to think critically about theories and research in Psychology (research report, discussions).
- Demonstrate effective written communication skills (research report).

Text & Additional Resources: I will place a selection of readings from various sources on MyCourses and direct you to possible resources available through the Wallace Library at RIT.
Literature, Culture and Media

Course Description

Students will study literary and cultural texts selected from traditional literature to contemporary media and culture (including mythology, poetry, plays, novels, film, graphic novels, and digital literature). Students will analyze these texts from a variety of perspectives and become familiar with the history of debates about literature and/or culture as arenas of human experience.

Goals of the course

• to develop analytical skills through reading, discussion, and writing
• to develop critical thinking skills through close reading of literary texts, cultural artifacts, and critical/analytical essays on these subjects
• to introduce the skills, principles, and terminology of literary interpretation
• to gain an appreciation for the art and politics of literary and cultural representations
• to develop an awareness of the correlation between literary and cultural artifacts, and their social and cultural contexts
• to gain a broad understanding of genres—in literary, oral, aural, and visual media—as well as how these genres can interact with one another
• to become familiar with scholarly and popular debates over literary canons, critical analysis, and cultural studies

Learning outcomes

Students will:

• Consider the reasons that people read and write literature
• Consider the social and personal function of literature and other creative arts
• Experience reading as a sustained activity over a period of several months, with a peer cohort
• Develop English vocabulary
• Consider style of expression and the writer’s craft
• Develop skills in close reading, note taking, and attention to textual detail
• Develop an understanding of the impact of authors’ cultural and historical circumstances on their work
• Recognize connections between literature and life
• Use the RIT library electronic databases to search for contemporary short stories
• Practice their presentation and public speaking skills
Graded Assignments

Reader Response Journals/Portfolio
Poetry test
Short story test
Student-led discussion on selected contemporary short story
Test on student-selected stories
Final creative essay
Participation

Class format: Class hours 3 Lab hours 0

Course materials and textbooks:

The Course Packet should be purchased at the RIT Croatia copy center. Older course packets are out of date and should not be used.

Additional required readings may be posted on My Courses. These readings will be announced by the professor. Students will be expected to download, print, read and save these texts.
Intermediate Spanish I

Course Description

This is the first course in the Intermediate Spanish sequence (second year). Intermediate Spanish I is a course in Conversation, along with grammar review and culture study. Emphasis is on tourist survival situation dialogues, various forms of conversation, grammar review, and both formal and informal culture (the arts and daily behavior). The basic skills learned in the first year courses are now put into practice. (MLSP-202 Beginning Spanish II or equivalent proficiency; students must take the placement exam if this is their first RIT Spanish class, and they have some prior study of Spanish) Class 3, Credit 3 (F)

Course Objectives

This course is designed to help students improve their vocabulary and better use their knowledge of the Spanish language. The primary goal of the course is to enable them to feel free to discuss various subjects/topics and express their own opinions freely, in Spanish.

Each lesson will cover one area (or one problem) of everyday life. Students will have to make a comparison between different realities: Spanish, their own view of it and their perspective of that situation in their own country. They will learn how to converse in Spanish and exchange their ideas freely. Students will master at least one grammar feature in each lesson in an applied way: they will have to immediately apply various grammatical structures in conversation or written/oral exercises.

In order to give students more opportunity to practice speaking, each of them will also participate in at least one (team-) project during the quarter and will have to make a presentation in Spanish on a chosen topic.

One of the most important objectives of the course is also to teach students how to write better in Spanish, and prepare them to use this language in their professional careers in the future. For this purpose students will have to write a short essay (a paragraph) every week. The theme of the paragraph can also be the theme of the in-class discussion. The instructor will also organize (when necessary, at least once in a semester) writing labs, where students will be correcting each other thus learning from each other’s mistakes.
Grading

Homework and/or Other Written Assignments 10 points
Grammar and Vocabulary Quizzes (3 x 15) 45 points
Debates 7 points
Course Project/Presentation 8 points
Final Oral Examination 10 points
Final Writing Exam (Essay) 10 points
Class Absences and Class Participation 10 points
TOTAL 100 points

Class format: Class hours 3 Lab hours 0

Course materials and textbooks:


Additional books

- Keith Chambers, Beginner’s Spanish Grammar, Teach Yourself Books (or any other grammar of the Spanish language)
- José SilesArtés: Historias para conversar – Nivel Medio; SGEL S.A. 2001
- ¿Adónde? ConocerEspaña y los países hispanohablantes, S.C. Ramírez, Elli, 2005

An English-Spanish/Spanish-English dictionary is strongly recommended
Intermediate Italian I

Course Description

This is the first course of a two-course sequence at the intermediate level. The sequence provides students with the tools to increase their ability to function in Italian. Communicative activities, contemporary texts, and the study of vocabulary and grammar are used to expand all communication skills, especially oral proficiency. This sequence continues to address issues of contemporary Italian life and culture. (MLIT-202 Beginning Italian II or equivalent proficiency; students must take the placement exam if this is their first RIT Italian class, and they have some prior study of Italian) Class 3, Credit 3 (F)

Course Objectives

This course is designed to help students improve their vocabulary and better use their knowledge of the Italian language. The primary goal of the course is to enable them to feel free to discuss various subjects/topics and express their own opinions freely, in Italian.

Each lesson will cover one area (or one problem) of everyday life. Students will have to make a comparison between different realities: Italian, their own view of it and their perspective of that situation in their own country. They will learn how to converse in Italian and exchange their ideas freely. Students will master at least one grammar feature in each lesson in an applied way: they will have to immediately apply various grammatical structures in conversation or written/oral exercises.

One of the most important objectives of the course is also to teach students how to write better in Italian, and prepare them to use this language in their professional careers in the future. For this purpose students will have to write a short essay (a paragraph) every week. The theme of the paragraph can also be the theme of the in-class discussion.

Grading

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<th>Category</th>
<th>Points</th>
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<tr>
<td>Homework and/or Other Written Assignments</td>
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<td>Grammar and Vocabulary Quizzes (3 x 15)</td>
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<td>Debates</td>
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<td>Course Project/Presentation</td>
<td>8</td>
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<tr>
<td>Final Oral Examination</td>
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<tr>
<td>Final Writing Exam (Essay)</td>
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<td>Class Absences and Class Participation</td>
<td>10</td>
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<tr>
<td>TOTAL</td>
<td>100</td>
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</table>

Class format: Class hours 3 Lab hours 0
Course materials and textbooks:

- Bar Italia, by Annamaria Di Francesco e Ciro Massimo Naddeo
- Crescendo, Workbook/Lab Manual and Audio CDs

Additional Course Material:

- Giocare con la letteratura, by Carlo Guastalla, Alma Edizioni, Firenze
- Ponti, italianoterzomillenio, 3rd editon, by Elissa Tognozzi e Giuseppe Cavatorta, Heinle Cengage Learning, 2013
- Ponti, italianoterzomillenio, 2nd editon, Student Activities Manual, by Elissa Tognozzi e Giuseppe Cavatorta, Heinle Cengage Learning, 2013
- Pro e contro 1/2, conversare e argomenatare in italiano, PazitBarki e PierangelaDiadori, livellointermedio, librodellostudente, Bonaccieditore, secondaedizione, Roma, 1999
- Pro e contro, conversare e argomenatare in italiano, PazitBarki e PierangelaDiadori, livellointermedio, guida per l’insegnante, Bonaccieditore, secondaedizione, Roma, 1999
Intermediate German I

Course Description

This is the first course of a two-course sequence at the intermediate level. The sequence provides students with the tools to increase their ability to function in German. Communicative activities, contemporary texts, and the study of vocabulary and grammar are used to expand all communication skills, especially oral proficiency. This sequence continues to address issues of contemporary German life and culture. (MLGR-202 Beginning German II or equivalent proficiency; students must take the placement exam if this is their first RIT German class, and they have some prior study of German) Class 3, Credit 3 (F)

Course Objectives

This course is designed to help students improve their vocabulary and better use their knowledge of the German language. The primary goal of the course is to enable them to feel free to discuss various subjects/topics and express their own opinions freely, in German.

Each lesson will cover one area (or one problem) of everyday life. Students will have to make a comparison between different realities: German, their own view of it and their perspective of that situation in their own country. They will learn how to converse in German and exchange their ideas freely. Students will master at least one grammar feature in each lesson in an applied way: they will have to immediately apply various grammatical structures in conversation or written/oral exercises.

One of the most important objectives of the course is also to teach students how to write better in German, and prepare them to use this language in their professional careers in the future. For this purpose students will have to write a short essay (a paragraph) every week. The theme of the paragraph can also be the theme of the in-class discussion. The instructor will also organize (when necessary, at least once in a semester) writing labs, where students will be correcting each other thus learning from each other’s mistakes.

Grading

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<td>Grammar and Vocabulary Quizzes (3 x 15)</td>
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<td>10</td>
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<tr>
<td><strong>TOTAL</strong></td>
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</table>

Class format: Class hours 3 Lab hours 0
Course materials and textbooks:

- KALEIDOSKOP, Eighth Edition, Premium Website

Additional books:

- An English-German/German-English dictionary is strongly recommended
- http://dict.tu-chemnitz.de/
- http://wordreference.com/
**Intermediate Russian I**

**Course Description**

This is the first course of a two-course sequence at the intermediate level. The sequence provides students with the tools to increase their ability to function in Russian. Communicative activities, contemporary texts, and the study of vocabulary and grammar are used to expand all communication skills, especially oral proficiency. This sequence continues to address issues of contemporary Russian life and culture. (MLRU-202 Beginning Russian II or equivalent proficiency) Class 3, Credit 3 (F)

**Course objectives**

This course is designed to help students improve their vocabulary and better use their knowledge of the Russian language. The primary goal of the course is to enable them to feel free to discuss various subjects/topics and express their own opinions freely, in Russian.

Each lesson will cover one area (or one problem) of everyday life. Students will have to make a comparison between different realities: Russian, their own view of it and their perspective of that situation in their own country. They will learn how to converse in Russian and exchange their ideas freely. Students will master at least one grammar feature in each lesson in an applied way: they will have to immediately apply various grammatical structures in conversation or written/oral exercises.

In order to give students more opportunity to practice speaking, each of them will also participate in at least one (team-) project during the semester and will have to make a presentation in Russian on a chosen topic.

One of the most important objectives of the course is also to teach students how to write better in Russian, and prepare them to use this language in their professional careers in the future. For this purpose students will have to write a short essay (a paragraph) every week. The theme of the paragraph can also be the theme of the in-class discussion. The instructor will also organize (when necessary, at least once in a semester) writing labs, where students will be correcting each other thus learning from each other’s mistakes.

**Grading**

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<tr>
<td>Class Absences and Class Participation</td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100 points</strong></td>
</tr>
</tbody>
</table>
**Class format:** Class hours 3 Lab hours 0

**Course materials and textbooks:**


„Golosa“ – Student Activity Book

„Golosa“ – CDs
Web Application Development

Course Description
When building larger-scale web applications, there are a myriad of concerns that range from technology, framework, and architecture selection to runtime performance optimization. This course focuses on the development of integrated web applications that consume information served from one or many sources. Trends in web application development are identified and assessed. Programming projects are required.

Prerequisites: ISTE-341 or equivalent courses

Class Format: Lecture/Lab Hours 3, Credits 3

Course Objectives
Among others, following topics will be covered in this course:
- Principles of Client-Server distributed code in a web environment (protocols, languages, architectures)
- Client-side rendering environments (HTML5, SVG, proprietary technologies)
- Server-side development environments (PHP, Perl, content management system, application architectures)
- Dynamic generation of client-side code at the server
- Communication between client and server (GET and POST, AJAX, JSON)
- Each student will choose an advanced topic and present it

Learning Outcomes
By the end of this course, the student should be able to:
- Write applications which are browser and platform independent. Assessed by individual projects.
- Integrate client-server technologies by dynamically generating client-side code at the server that has the ability to manipulate the DOM on the client. Assessed by individual projects.
- Write programs and GUIs using technologies such as SVG, JavaScript, PHP, SQL and other scripting environments to gain competence with current and future practices. Assessed by individual projects.
- Research new technologies and techniques. Assessed by in-class presentations.
Grading

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<td>Assignment 1: Self-Guided Study</td>
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<td>Assignment 2: Multi-User Interactive Turn-Based Game</td>
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<td>In-Class Participation</td>
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Course Materials and Textbooks


In addition to the books, online readings might be assigned in class.
Web Server Development and Administration

Course Description

Web developers often need to go beyond building Web pages and client-server programming to plan, install, configure, develop, and maintain the Web servers that host their sites. They need to understand issues of scalability, performance, and security as they apply to deploying a Web presence.

Course objectives and learning outcomes

This course provides a practical hands-on approach to development, configuration, and administration of Web server platforms. Topics include issues of and approaches to scalability, multiple server systems, security, and auditing, as well as the many configuration options, modules, and server alternatives available. By the end of the course, each student will be expected to:

- Understand the security and auditing aspects of web server programming
- Demonstrate the ability to install and analyze scalability and performance issues
- Install, configure, develop and maintain web servers

Grading

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<td>Homework</td>
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</table>

Class format: Class hours 2  Lab hours 2

Course materials and textbooks:

The following are sample texts, from which excerpts might be assigned:
- Linux Apache Web Server Administration (Linux Library)
- Run Your Own Web Server Using Linux & Apache
  Additional material distributed in class and/or via MyCourses
Ecology of the Dalmatian Coast

Course Description

This course is an introduction to population, community and ecosystem ecology, stressing the dynamic interrelationships of plant and animal communities of the Dalmatian Coast. The course includes such ecological concepts as energy flow and trophic levels in natural communities, population and community dynamics, biogeography and ecosystem ecology. Field trips to local ecosystems are included. Class 3, Lab 2, Credit 4 (S)

Goals of the course

- to explain and synthesize ecological concepts at the individual, population, community, and ecosystem level
- to learn about experimental design and local ecosystems
- to critically read scientific articles
- revise and improve written content

Learning Outcomes

- Identify, explain, and assess different viewpoints, pressures, and conflicts associated with environmental issues
- Develop analytical capabilities through field exercises
- Critically evaluate materials presented in class and during labs.
- Defend claims and solutions using evidence gathered from primary literature
- Identify how human actions impact the concept of sustainability and ways to minimize these impacts
- Demonstrate ability to work on a group assignment
- Improve communication skills

Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
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<tr>
<td>Research Paper</td>
<td>15</td>
</tr>
<tr>
<td>Presentation</td>
<td>10</td>
</tr>
<tr>
<td>Discussion paper</td>
<td>20</td>
</tr>
<tr>
<td>Quiz 1</td>
<td>5</td>
</tr>
<tr>
<td>Quiz 2</td>
<td>5</td>
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<tr>
<td>Final Exam</td>
<td>30</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
**Class format:**  Class hours 3  Lab hours 2

**Course materials and textbooks:**


Papers selected from the primary literature (updated annually)
Intermediate Spanish II

Course Description

This is the second course in the Intermediate Spanish sequence (second year). Intermediate Spanish II is a composition course, emphasizing grammar review, composition, business-letter writing, Spanish for the Professions, and culture, while also including work in speaking and listening. The basic skills learned in the first year courses are now put into practice. In addition to the language work, there is significant work on cultural topics of Spanish-speaking countries at the intermediate level. (MLSP-301 Intermediate Spanish I or equivalent proficiency; students must take the placement exam if this is their first RIT Spanish class, and they have some prior study of Spanish) Class 3, Credit 3 (S)

Course Objectives

This course is designed to help students improve their vocabulary and better use their knowledge of the Spanish language. The primary goal of the course is to enable them to feel free to discuss various subjects/topics and express their own opinions freely, in Spanish.

Each lesson will cover one area (or one problem) of everyday life. Students will have to make a comparison between different realities: Spanish, their own view of it and their perspective of that situation in their own country. They will learn how to converse in Spanish and exchange their ideas freely. Students will master at least one grammar feature in each lesson in an applied way: they will have to immediately apply various grammatical structures in conversation or written/oral exercises.

In order to give students more opportunity to practice speaking, each of them will also participate in at least one (team-) project during the quarter and will have to make a presentation in Spanish on a chosen topic.

One of the most important objectives of the course is also to teach students how to write better in Spanish, and prepare them to use this language in their professional careers in the future. For this purpose students will have to write a short essay (a paragraph) every week. The theme of the paragraph can also be the theme of the in-class discussion. The instructor will also organize (when necessary, at least once in a semester) writing labs, where students will be correcting each other thus learning from each other’s mistakes.
Grading

Homework and/or Other Written Assignments  10 points
Grammar and Vocabulary Quizzes (3 x 15)  45 points
Debates  7 points
Course Project/Presentation  8 points
Final Oral Examination  10 points
Final Writing Exam (Essay)  10 points
Class Absences and Class Participation  10 points
**TOTAL  100 points**

Class format:  Class hours  3  Lab hours 0

Course materials and textbooks:

- *José SilesArtés: Historias para conversar – Nivel Medio; SGEL S.A. 2001*
- *¿Adónde? ConocerEspaña y los países hispanohablantes, S.C. Ramírez, Elli, 2005*

An English-Spanish/Spanish-English dictionary is strongly recommended
Intermediate Italian II

Course Description

This is the second course of a two-course sequence at the intermediate level. The sequence provides students with the tools to increase their ability to function in Italian. Communicative activities, contemporary texts, and the study of vocabulary and grammar are used to expand all communication skills, especially oral proficiency. This sequence continues to address issues of contemporary Italian life and culture. (MLIT-301 Intermediate Italian I or equivalent proficiency; students must take the placement exam if this is their first RIT Italian class, and they have some prior study of Italian) Class 3, Credit 3 (S)

Course Objectives

This course is designed to help students improve their vocabulary and better use their knowledge of the Italian language. The primary goal of the course is to enable them to feel free to discuss various subjects/topics and express their own opinions freely, in Italian. Each lesson will cover one area (or one problem) of everyday life. Students will have to make a comparison between different realities: Italian, their own view of it and their perspective of that situation in their own country. They will learn how to converse in Italian and exchange their ideas freely. Students will master at least one grammar feature in each lesson in an applied way: they will have to immediately apply various grammatical structures in conversation or written/oral exercises.

In order to give students more opportunity to practice speaking, each of them will also participate in at least one (team-) project during the quarter and will have to make a presentation in Italian on a chosen topic.

One of the most important objectives of the course is also to teach students how to write better in Italian, and prepare them to use this language in their professional careers in the future. For this purpose students will have to write a short essay (a paragraph) every week. The theme of the paragraph can also be the theme of the in-class discussion. The instructor will also organize (when necessary, at least once in a semester writing labs, where students will be correcting each other thus learning from each other’s mistakes.)
Grading

Homework and/or Other Written Assignments      10 points
Grammar and Vocabulary Quizzes (3 x 15)              45 points
Debates                                                7 points
Course Project/Presentation                        8 points
Final Oral Examination                                10 points
Final Writing Exam (Essay)                           10 points
Class Absences and Class Participation             10 points
TOTAL                                                100 points

Class format: Class hours  3  Lab hours 0

Course materials and textbooks:

- Crescendo, Workbook/Lab Manual and Audio CDs
- Ponti, italiointerzomilenio, 3rd edition, by Elissa Tognozzi e Giuseppe Cavatorta, Heinle Cengage Learning, 2013

Additional books:

- Giocare con la letteratura, by Carlo Guastalla, Alma Edizioni, Firenze
- Pro e contro 1/2, conversare e argomenatare in italiano, PazitBarki e PierangelaDiadori, livellointermedio, libbrodellostudente, Bonacceditore, secondaedizione, Roma, 1999
- Pro e contro, conversare e argomenatare in italiano, PazitBarki e PierangelaDiadori, livellointermedio, guida per l’insegnante, Bonacceditore, secondaedizione, Roma, 1999
Intermediate German II

Course description

This is the second course of a two-course sequence at the intermediate level. The sequence provides students with the tools to increase their ability to function in German. Communicative activities, contemporary texts, the study of vocabulary and grammar are used to expand all communication skills, especially oral proficiency. This sequence continues to address issues of contemporary German life and culture. (MLGR-301 Intermediate German I or equivalent proficiency; students must take the placement exam if this is their first RIT German class, and they have some prior study of German) Class 3, Credit 3 (S)

Course objectives

This course is designed to help students improve their vocabulary and better use their knowledge of the German language. The primary goal of the course is to enable them to feel free to discuss various subjects/topics and express their own opinions freely, in German.

Each lesson will cover one area (or one problem) of everyday life. Students will have to make a comparison between different realities: German, their own view of it and their perspective of that situation in their own country. They will learn how to converse in German and exchange their ideas freely. Students will master at least one grammar feature in each lesson in an applied way: they will have to immediately apply various grammatical structures in conversation or written/oral exercises.

One of the most important objectives of the course is also to teach students how to write better in German, and prepare them to use this language in their professional careers in the future. For this purpose students will have to write a short essay (a paragraph) every week. The theme of the paragraph can also be the theme of the in-class discussion. The instructor will also organize (when necessary, at least once in a semester) writing labs, where students will be correcting each other thus learning from each other’s mistakes.

Grading

Homework and/or Other Written Assignments 10 points  
Grammar and Vocabulary Quizzes (3 x 15) 45 points  
Debates 7 points  
Course Project/Presentation 8 points  
Final Oral Examination 10 points  
Final Writing Exam (Essay) 10 points  
Class Absences and Class Participation 10 points  
TOTAL 100 points

Class format: Class hours 3  Lab hours 0
Course materials and textbooks:

- KALEIDOSKOP, Eighth Edition, Premium Website

Additional Course Material

- An English-German/German-English dictionary is strongly recommended
- http://dict.tu-chemnitz.de/
- http://wordreference.com/
Intermediate Russian II

Course Description

This is the second course of a two-course sequence at the intermediate level. The sequence provides students with the tools to increase their ability to function in Russian. Communicative activities, contemporary texts, the study of vocabulary and grammar are used to expand all communication skills, especially oral proficiency. This sequence continues to address issues of contemporary Russian life and culture. (MLRU-301 Intermediate Russian I or equivalent proficiency) Class 3, Credit 3 (S)

Course Objectives

This course is designed to help students improve their vocabulary and better use their knowledge of the Russian language. The primary goal of the course is to enable them to feel free to discuss various subjects/topics and express their own opinions freely in Russian.

Each lesson will cover one area (or one problem) of everyday life. Students will have to make a comparison between different realities: Russian, their own view of it and their perspective of that situation in their own country. They will learn how to converse in Russian and exchange their ideas freely. Students will master at least one grammar feature in each lesson in an applied way: they will have to immediately apply various grammatical structures in conversation or written/oral exercises.

In order to give students more opportunity to practice speaking, each of them will also participate in at least one (team-) project during the quarter and will have to make a presentation in Russian on a chosen topic.

One of the most important objectives of the course is also to teach students how to write better in Russian, and prepare them to use this language in their professional careers in the future. For this purpose students will have to write a short essay (a paragraph) every week. The theme of the paragraph can also be the theme of the in-class discussion. The instructor will also organize (when necessary, at least once in a semester) writing labs, where students will be correcting each other thus learning from each other’s mistakes.

Grading

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td>Homework and/or Other Written Assignments</td>
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<tr>
<td>Grammar and Vocabulary Quizzes (3 x 15)</td>
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<tr>
<td>Debates</td>
<td>7</td>
</tr>
<tr>
<td>Course Project/Presentation</td>
<td>8</td>
</tr>
<tr>
<td>Final Oral Examination</td>
<td>10</td>
</tr>
<tr>
<td>Final Writing Exam (Essay)</td>
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<tr>
<td>Class Absences and Class Participation</td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Class format: Class hours 3  Lab hours 0

Course materials and textbooks:


„Golosa“ – Student Activity Book

„Golosa“ – CDs
YEAR 4 – COURSE DESCRIPTIONS
Database Application Development

Course Description

Database applications have aspects that need to be considered when designing and developing larger-scale applications and information systems. In this course students will explore topics such as software architecture in designing data-centric applications, advanced operations with a database from a programming language, concurrent processing and multi-user considerations, scalability and performance issues, best practices and anti-patterns, and object-relational mappings, within the context of developing larger-scale database information processing systems. Programming exercises and projects are required for this course.

Prerequisites: ISTE-230, ISTE-330.

Course objectives

Specific design and implementation considerations need to be addressed when developing large-scale multi-user application or information systems and accompanying relational databases. In this course, students will explore topics such as architectural styles for database application development, including architecture analysis and multi-user issues, data and business layers concepts, design patterns and business layer binding, scalability and performance considering SQL design and data manipulation, database connection management and pooling, application vs. domain data model considerations, advanced programming techniques and exception handling in database applications, building and refactoring, deployment, and security, as well as object-relational mappings, all within the context of database applications development.

Learning outcomes

At the end of the successfully completed course students should be able to:

- Develop applications that maintain data integrity in multi-user database applications
- Describe and implement various locking schemes
- Describe and implement methods for controlling user access
- Develop database applications that interact with other systems
- Analyze and architect effective, user-centric solutions within information-intensive environments
- Develop and deploy n-tier, integrated, user-centric computing systems
Grading

- Exercises and Review: 25%
- Project: 35%
- Midterm Exam: 20%
- Final Exam: 20%

Class format: Class 3 hours, Lab 0 hours

Course materials and textbooks: None required.
Senior Development Project I

Course Description
The first course in a two-course, senior level, system development capstone project. Students form project teams and work with sponsors to define system requirements. Teams then create architectures and designs, and depending on the project, also may begin software development. Requirements elicitation and development practices introduced in prior coursework are reviewed, and additional methods and processes are introduced. Student teams are given considerable latitude in how they organize and conduct project work.

Course objectives
To learn all phases in project management with special emphasize on:

- Initiation phase
- Definition phase
- Design phase
- Development phase

Learning outcomes
- Students will learn the basic about delivering a prototype or 'proof of concept';
- Students will be oriented towards defining requirements and design limitations of project;
- Students will be faced with research and development phase as crucial in IT project;
- Students will master team reporting.

Grading

<table>
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<tr>
<th>Component</th>
<th>Points</th>
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<tr>
<td>Use Case Documentation</td>
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<tr>
<td>PM Documentation</td>
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<tr>
<td>System Design Documentation</td>
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</tr>
<tr>
<td>Peer Review</td>
<td>10</td>
</tr>
<tr>
<td>Participation</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Class format: Class hours 3; Lab hours 0

Course materials and textbooks:


Course Description

This class is an intensive introduction to researched writing. Students will develop proficiency in analytical writing, critical reading and critical thinking, by writing within a variety of contexts and with a variety of purposes. Students will develop writing strategies and research skills that they will draw on throughout their academic careers. There will be particular attention to the writing process including an emphasis on teacher-student conferencing, self-assessment, class discussion, peer review, formal and informal writing, research and revision.

Course objectives

- to have students learn appropriate writing process strategies: pre-writing, composing and revising, editing, and consideration of audience and purpose
- to teach students to employ critical and creative thinking skills for self-assessment and reflection on the writing process
- to provide students with the appropriate grammatical and mechanical structures to support the development of their writing and to successfully express meaning
- to have students read advanced college-level texts for the purposes of discussion and composition
- to teach students to collaborate with peers and learn how to supply effective feedback
- to provide students with the skill for using a range of technologies to address different audiences

Learning outcomes

Students will:

- practice the appropriate writing process strategies: pre-writing, composing and revising, editing, and consideration of audience and purpose
- employ critical and creative thinking skills for self-assessment and reflection on the writing process
- apply the appropriate grammatical and mechanical structures to support the development of their writing and to successfully express meaning
- read advanced college-level texts for the purposes of discussion and composition
- collaborate with peers and learn how to supply effective feedback
- use a range of technologies to address different audiences
Grading

<table>
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<th>Component</th>
<th>Points</th>
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<tr>
<td>Summary</td>
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<td>Working Bibliography</td>
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<td>Annotated Bibliography</td>
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<td>Draft</td>
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<td>Final draft</td>
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<tr>
<td>Participation/Homework</td>
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<tr>
<td>Attendance</td>
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<td><strong>Total:</strong></td>
<td><strong>100</strong></td>
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</table>

The A-F letter grade is computed according to the standard 100% system: A = 91-100; B = 80-89; C = 70-79; D = 60-69; F = 0-59.

**Class format:** Class hours 3 Lab hours 0

**Course materials and textbooks:**


Contemporary Databases

Course Description

This course will introduce the topic of contemporary databases by covering the design, application and use of non-relational (NoSQL) database technologies. Topics include an overview of data types, structuring and processing data and knowledge, data transformation, and data storage and warehousing. Students will learn the interaction between relational and non-relational databases in the Cloud or other storage media. Programming assignments will be required. (Prerequisites: ISTE-230, ISTE-240)

Course objectives

The goal of this course is to provide students with familiarity in the use of contemporary databases such as non-relational databases to store various non-traditional forms of data, using more recently developed database technologies, and to determine appropriate applications of these technologies.

Learning outcomes

The student will:

- Describe the challenges of large datasets.
- Describe and explain the differences in types of data.
- Demonstrate the process of structuring data.
- Describe and explain the technologies enabling different data stores.
- Describe the use and interaction of structured data and unstructured data.

Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Exercises/Class Participation</td>
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<tr>
<td>Projects</td>
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<tr>
<td>Midterm Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
</tbody>
</table>

Class format: Class hours 3 Lab hours 0
Course materials and textbooks:


Web Application Development

Course Description
When building larger-scale web applications, there are a myriad of concerns that range from technology, framework, and architecture selection to runtime performance optimization. This course focuses on the development of integrated web applications that consume information served from one or many sources. Trends in web application development are identified and assessed. Programming projects are required.

Prerequisites: ISTE-341 or equivalent courses

Class Format: Lecture/Lab Hours 3, Credits 3

Course Objectives
Among others, following topics will be covered in this course:
- Principles of Client-Server distributed code in a web environment (protocols, languages, architectures)
- Client-side rendering environments (HTML5, SVG, proprietary technologies)
- Server-side development environments (PHP, Perl, content management system, application architectures)
- Dynamic generation of client-side code at the server
- Communication between client and server (GET and POST, AJAX, JSON)
- Each student will choose an advanced topic and present it

Learning Outcomes
By the end of this course, the student should be able to:
- Write applications which are browser and platform independent. Assessed by individual projects.
- Integrate client-server technologies by dynamically generating client-side code at the server that has the ability to manipulate the DOM on the client. Assessed by individual projects.
- Write programs and GUIs using technologies such as SVG, JavaScript, PHP, SQL and other scripting environments to gain competence with current and future practices. Assessed by individual projects.
- Research new technologies and techniques. Assessed by in-class presentations.
Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Exam on Web Application Security</td>
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<tr>
<td>Assignment 1: Self-Guided Study</td>
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</tr>
<tr>
<td>Assignment 2: Multi-User Interactive Turn-Based Game</td>
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<tr>
<td>In-Class Participation</td>
<td>5%</td>
</tr>
</tbody>
</table>

Course Materials and Textbooks


In addition to the books, online readings might be assigned in class.
Senior Development Project II

Course Description

The second course in a two-course, senior level, system development capstone project. Student teams complete development of their system project and package the software and documentation for deployment. Usability testing practices introduced in prior coursework are reviewed, and additional methods and processes are introduced. Teams present their developed system and discuss lessons learned at the completion of the course.

Course objectives

To learn all phases in project management with special emphasize on:

- Implementation phase;
- Follow-up phase.

Learning outcomes

- Students will be oriented towards construction of the actual project result;
- Students will produce software package;
- Students will master making documentation.

Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Reports</td>
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<tr>
<td>Documentation</td>
<td>25</td>
</tr>
<tr>
<td>Final Deliverable</td>
<td>35</td>
</tr>
<tr>
<td>Peer Review</td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Class format: Class hours 3; Lab hours 0

Course materials and textbooks:

Scott Berkun; Making Things Happen: Mastering Project Management (Theory in Practice), Revised Edition; O'Reilly; 2008; ISBN-10: 0596517718