R2i2 Course Guide 2021-2022

Think.
Create.
Innovate.

R2i2
Registration/Course Guide

Richland Two Institute of Innovation (R2I2) Student Innovation Center
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R2i2
Mission Statement

As The Student Innovation Center at R2i2, our *mission* is to foster individual student growth as an innovator by stimulating creativity, encouraging leadership, promoting teamwork, and building entrepreneurial skills while engaging the global community.

Richland School District Two
Comprehensive Developmental School Counseling Mission

Richland School District Two outlines for each student, grades PK-12, the personal, social, career, and educational knowledge and skills that support a rewarding and productive life in an ever-changing world. The comprehensive guidance program framework of Richland School District Two provides standards and strategies for each school in the district to follow in developing and implementing a Comprehensive Developmental School Program.

Leadership Team

Kevin Alberse, Director
Jenniferr Cain, Assistant Principal
Allie Harris, Outreach Officer
Sandra Baker, Administrative Assistant & Bookkeeper

Faculty

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R2i2 Course Offerings

A note about this guide: The larger blue text highlights each strand offered at R2i2. The first course name listed with the course number next to it is how the SC Department of Education recognizes the course. The course name in quotes is the R2i2 title and is used when discussing and marketing the courses.

Next Energy Engineering

Clean Energy Systems 1 638000CW or 638000HW: "Next Energy Engineering 1" (*Honors or College Prep*)
This course exposes students to three sources of renewable energy: wind, solar and biofuels. Working with solar, thermal, chemical and mechanical sources of clean energy teaches students how to apply physics, geography, chemistry, biology, geometry, algebra and engineering fundamentals. Students learn the most efficient and appropriate use of energy production as they explore the relevant relationships among work, power and energy. Students will engage in a wide variety of hands on projects and lab activities that both test their knowledge and illustrate the interrelationships between the various forms of clean energy. **Credit: 1**

Clean Energy Applications 2 638100CW or 638100HW: "Next Energy Engineering 2" (*Honors or College Prep*)
This course builds on the foundation of Course 1 and introduces nuclear power, bioenergy, fuel cells, geothermal power, water power, AC/DC power generation, heat transfer and the laws of thermodynamics. In addition, students now use chemical and thermal energy principles to create, store and use energy efficiently to power a variety of mechanical and electrical devices. Students will engage in a variety of hands-on design projects to demonstrate principles using advanced technology hardware and software. **Credit: 1**
Prerequisite: Successful completion of course 1 or permission of R2i2 instructor.

Engineering Technology Foundations: MTC: EGR 104 Dual Enrollment 606400EW
This problem-based course introduces the student to fundamental concepts of electrical, mechanical, thermal, fluids, optical, and material systems to engineering technology. Workplace readiness skills such as laboratory safety, communications, and teamwork are integrated into the course.

3D Printing & 3D Design w/CATIA

Mechanical Design 1 617200CW: "3D Printing and 3D Design w/CATIA (V.5) I"

The 3D Printing and Design I course at R2i2 will educate students on the use and application of CATIA V.5: a multi-platform computer-aided design (CAD)/computer-aided manufacturing (CAM)/computer-aided engineering (CAE) software suite. Students will design parts and assemblies according to the specifications of each assignment and manufacture these parts using 3D-Printing/Additive Manufacturing. Students will prepare for professional certification in CATIA v5 in Mechanical Design 2 and receive more information on the pursuit of careers in this industry. **Credits: 1**

Mechanical Design 2 617300CW or 617300HW: "3D Printing and 3D Design w/CATIA (v.5) II" (*Honors or College Prep*)
The 3D Printing and Design II course at R2i2 will advance student competency in the use and application of CATIA: a multi-platform computer-aided design (CAD)/computer-aided manufacturing (CAM)/computer-aided engineering (CAE) software suite. Students will expand on level 1 competencies with advanced topics including Kinematics, Parametric modeling, and Additive Manufacturing Certification. Students will test for professional certification in CATIA and be introduced to the professional careers within these industries. *Additional coursework will be required of honors students*. Credits: 1

Print Reading and Sketching: 620900EW (Dual Enrollment Class with MTC: EGT 106)
This course covers the interpretation of basic engineering drawings and sketching techniques for making multi-view pictorial representations. This course also includes an introduction to engineering technology, and an introduction to Computer Aided Design (CAD).

Intermediate CAD Applications: *Course Number TBA* **(Dual Enrollment Class with MTC: EGT 156)**
This course builds on the fundamentals of computer-aided drafting and includes such concepts as 3D modeling and user interface customization. This course also provides the foundation for advanced computer-aided drafting concepts and applications. *Prerequisite: Print Reading and Sketching Dual Credit*

Computer Programming and Coding

Computer Programming 1 505000CW: "Apple App Development"
Students will build apps for Apple's mobile devices using the language and tools of professionals – Swift and X-code. Students experience an authentic workplace environment applying the skills of problem-solving, collaboration, and communication to industry best practices, like paired programming and rapid iteration. The apps students build grow in complexity throughout the semester, culminating in an app showcase, where students demonstrate an app they built – just like professionals do at technology events. **Credit: 1 (Satisfies Computer Science Graduation Requirement)**

Computer Programming 1 *Course Number TBA*: **"App Development Using Python"**
Students will dive into the fundamentals of programming concepts while learning text based coding using Python. Students will apply skills such as computational problem solving, collaboration, and communication. Student projects will increase in complexity throughout the semester, culminating in creative tasks that allow them further exploration of various topics driven by their interests. **Credit: 1 (Satisfies Computer Science Graduation Requirement)**

AP Computer Science Principles 477500AW (Develop in Swift AP Computer Science Principles)
The Develop in Swift AP CS Principles course helps students build a foundation in programming using Swift—a powerful and intuitive open source programming language designed by Apple—while preparing them for the AP Computer Science Principles Exam. Students will get practical experience with the tools, techniques, and concepts needed to build an iOS app. They'll learn about the impact of computing, privacy, and security on society, while exploring the technology behind their own activities through interactive stories. **Credit: 1 (Satisfies Computer Science Graduation Requirement. A year-long course.)**

It is recommended that students in the AP Computer Science Principles course have successfully completed a first-year high school algebra course with a strong foundation of basic linear functions, composition of functions, and problem-solving strategies. Students should be able to use a Cartesian (x, y) coordinate system to represent points on a plane. ***It is important that students and their advisers understand that any significant computer science course builds upon a foundation of mathematical reasoning that should be acquired before attempting such a course.*** *Prior computer science experience is not required to take this course.*

Culinary

This course is offered in blocks. Blocks offer 2 credit hours.

Baking and Pastry 572300CD:

Baking and Pastry for secondary students is a course that provides students an opportunity to develop foundational skills needed for a seamless transition to a postsecondary program, workforce, or military. Students will develop advanced skills in safety and sanitation in addition to management and professionalism. Specialized content includes units on formulas and techniques, basic baking principles, specialized dietary baking, breads, desserts and pastries, and advanced techniques for specialty cakes, confections, piping, plate presentation, and flavor pairing. Concepts are aligned with competencies from the American Culinary Federation (ACF) Education foundation assessment, and ACF Retail Commercial Baking Certification. **Credits: 2**

Business

Social Media & Business 503400CW: "Marketing and Social Media"

This course covers an introduction to the field of marketing with a detailed study of the marketing concept and the processes of product development, pricing, promotion, and marketing distribution.
Additionally, students will participate in creation of a vast array of social media sites, resources, applications and tools, as well as evaluating the impact, effectiveness and design of various elements of advertising strategy and campaigns. **Credit: 1**

Marketing: Dual Enrollment Option with MTC: MKT 101 (671000EW)

This course covers an intro to the field of marketing with a detailed study of the marketing concept and the processes of product development, pricing, promotion, and marketing distribution. **Credit: 1**

STEAM

B.E.A.T.S. & Animation 688700CW (innovative course # approved by SDE): "Animation and B.E.A.T.S. (Beginning Engineering of Audio Technology and Sound)"

Animation & B.E.A.T.S (Beginning Engineering in Audio Technology & Sound) is a unique course which brings together two universally powerful tools for communication, creativity and entertainment. This hands-on and product-focused course offers students the opportunity to develop knowledge and skills in 2D animation and music production. On completion of this course students will be able to showcase their creativity, technical and practical skills, design and critical thinking skills, as well as their employability skills to pursue further training in animation and music production if they so choose, or follow careers in various exciting STEAM-based fields. **Credits: 1**

Midlands Tech Dual Enrollment Course Offerings

Any R2i2 student is eligible to enroll in Dual Enrollment courses offered at R2i2 as long as the following entrance requirements are met.

1. ***The school counselor AND the parent/guardian must email R2i2@richland2.org their permission for the student to enroll in the course***
2. ***Students must have a minimum cumulative GPA of 2.0***
3. ***2020-21 grades will be reviewed and if the student scored below 70 on any online or hybrid offerings, R2i2 reserves the right to deny that student a dual credit option.***
4. ***If a student would like for the course costs (not including any textbooks) to be covered under state scholarship money, they are required to take 2 dual enrollment courses per semester. If the student prefers to take only one course for 3 credit hours, they can do so by paying the Midlands Tech tuition***

and fees for that single class. Neither the district nor the SC Lottery Tuition Assistance Program will pay for textbooks and textbooks are required.

NEW THIS YEAR! "Schedule-less"/Self-Paced Course Offerings

These courses have the same entrance requirements as those listed above for MTC dual enrollment courses, numbers 1-3 (enter "schedule-less class" in the email subject line).

Students who are enrolled will gain access to a self-paced and Internet-based course. An R2i2 teacher will serve as course facilitator, but students will be largely self-directed. Students will be required to complete weekly assignments/check-ins with the instructor. Each class has a max class size of 25 students.

Computer Science ("Schedule-less")

Computer Programming 1 *Course Number TBA*: **"App Development Using Python"**

Students will dive into the fundamentals of programming concepts while learning text based coding using Python. Students will apply skills such as computational problem solving, collaboration, and communication. Student projects will increase in complexity throughout the semester, culminating in creative tasks that allow them further exploration of various topics driven by their interests. **Credit: 1 (Satisfies Computer Science Graduation Requirement)**

Design Survey Course ("Schedule-less")

Industrial Technology Education 1 6040000CW: "The Art of Design-Architecture to Fashion"

This survey course is an introduction to the principles of design. Students will become competent in several types of design software: Computer-Aided Design, Graphic Design, Architectural Design, & Fashion Design. During the first nine weeks, students will use tutorials and videos to create basic designs using the varied design software. This work will be schedule-less with the expectation that students will meet weekly assignment deadlines. Daily participation will be self-paced & grades based on student competency. In the second nine weeks, students will pick a "major" & continue more in-depth projects with their selected software. This work will culminate in a project presentation based on the student work for this period. **Credit: 1**

Dual Enrollment Options Not Listed In This Guide: USC-Sumter

Courses subject to availability contingent upon University staffing.

Dual Enrollment Courses not taught by R2i2 Instructors are communicated to Guidance Departments as the information becomes available. These Dual Enrollment courses are offered through University of South Carolina-Sumter and taught by USC Professors on the R2i2 Student Innovation Center's campus. To enroll in any dual enrollment courses, students must meet specified criteria established by USC-Sumter. Parents/guardians should check with their student's university or colleges of interest to see if dual enrollment/credit courses will be accepted.

NOTE: The student must receive credit in both Eng 101 & Eng 102 to meet the Eng 4 requirement for a high school diploma.

Frequently asked questions

1. **Can 10th graders take an R2i2 dual credit class?**

   Yes, 10th graders can take dual credit classes offered by R2i2 teachers. They may not be eligible for dual credit classes taught by USC-Sumter or MTC personnel.

2. **What are the prerequisites for enrollment in dual credit classes?**

   Prerequisites for dual credit classes offered by R2i2 teachers are listed above. Prerequisites for classes taught by USC-Sumter or MTC have been shared with counselors in a separate communication from J. Cain.

3. **How do the "schedule-less" classes work?**

   Students express an interest in taking a schedule-less class through R2i2 to their school counselor. The counselor then notifies the student's parent/guardian that they are interested. If the parent/guardian agrees that their student can request a spot in the R2i2 Schedule-less class offerings, the counselor AND the parent/guardian must send a separate email to R2i2@richland2.org with the subject line reading "Schedule-less Class Request". After receive BOTH emails, R2i2 staff will review the student's profile to ensure they meet the additional entrance requirements as described above.

4. **What is the difference between dual enrollment and dual credit?**

   A student is dually enrolled with two campuses, in this case their Richland Two campus and their specific college campus (either MTC or USC-S). When the credit is earned, there will be a dual credit awarded.

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