



Dominican International School

台北市私立道明外僑學校

No. 76, Dazhi Street, Taipei (104042), Taiwan, R.O.C.

10464 臺北市中山區大直街 76 號



ICT & ROBOTICS 8 SYLLABUS

School Year	2026-2027
Subject	ICT & Robotics 8
Grade Level	Grade 8
Teacher	Mr. Edward Solis
Email	esolis@dishs.tp.edu.tw

COURSE DESCRIPTION:

Part 1: **Digital Competencies.** Each unit offers straightforward explanations and contemporary examples, making technology concepts accessible and relevant. Every unit includes a variety of tasks and activities designed to help students build essential digital competencies. Students learn about platform diversity, expanding their digital toolkit and adaptability.

Part 2: The Robotics curriculum opens the exciting world of computer science and robotics to middle school students in a fun and practical way. The lessons are constructed from hundreds of hours of actual middle school classroom experience. The learning activities are created from fun robotic projects designed to be inspiring and engaging, helping students see computing and technology as an important part of their world. The activities are designed with a focus on problem-based learning, creativity, exploration, critical thinking, and problem-solving. Learn computer programming concepts and develop Scratch coding skills. Study the basic elements of algorithms such as sequence, decision, and iteration. Learn about using pseudocode, flowcharts, and block diagrams. Develop programs with variables, loops, conditional instructions, and functions. Learn how to assemble mBot and understand basic robot system components. Use the scientific method to perform characterization studies of mBot sensor operation. Learn about robotic command and control programs by designing a state machine. Design an integrated, multi-input/output, robotic control program using the mBot RGB LEDs, Piezo Buzzer, Motors (Forward, Right Turn, Left Turn, and Backwards), Ultrasonic Sensor, Line Follower Sensor, and Light Detector Sensor. Explore the Software Development Life Cycle and learn about brainstorming, project planning, and the importance of reuse in technology development.

Part 3: Page Designing. This course introduces the basic principles of imaging and graphic design using Canva in preparation for their yearbook page. From simple photo editing and compositing to digital painting, and graphic design.



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Teaching materials for the course come from textbooks, classroom lectures, newspapers, journals, medical newsletters, videos, and the Internet.

REFERENCE:

- **Level Up Through Digital Discoveries 8.** McGrawHill Copyright 2026
- **Programming Arduino: Getting Started with Sketches**, Second Edition by *Simon Monk*
- **mBot Discovery: Learn & Teach Robotics In 12 Fun Lessons**, 2018 by *David Romano*

REFERENCE/LINKS:

- https://www.amazon.com/Programming-Arduino-Getting-Started-Sketches/dp/1259641635/ref=zg_bs_3956_3?encoding=UTF8&psc=1&refRID=5R39R5EMX0GBCS70C1J5
- https://www.amazon.com/mBot-Discovery-Learn-Robotics-Lessons/dp/0692139435/ref=sr_1_fkmr0_1?keywords=mBot+discovery+LEVEL+1&qid=1566007201&s=gateway&sr=8-1-fkmr0

ROBOTICS STANDARDS:

- <https://educationalliancefinland.com/products/mbot-series-steam-robots>

Our school website: <http://www.dishs.tp.edu.tw/>

Course Content:

The students will learn the different ways of Desktop Publishing, particularly page layout and design. Also, the course contains the basic modules in C Programming which would lead to basic Robotics.

Course Goal

- The students will learn simple C programming leading to Robotics
- The students will discover how to write basic sketches
- The students will use Arduino's modified C language, store data, and interface with the Web
- The students will get hands-on coverage of C++ library writing, and programming Arduino for the Internet of things.
- The students will understand Arduino hardware fundamentals
- The students will learn to produce positive and constructive interactions among the group members
- The students will learn to enhance further their skills in applying the different software
- The students will learn how to organize their ideas in creating the desired outcome
- The students will learn about using pseudocode, flowcharts, and block diagrams.



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- The students will develop programs with variables, loops, conditional instructions, and functions.
- The students will learn how to assemble mBot and understand basic robot system components.
- The students will use the scientific method to perform characterization studies of mBot sensor operation.
- The students will learn about robotic command and control programs by designing a state machine.
- The students will design an integrated, multi-input/output, robotic control program using the mBot RGB LEDs, Piezo Buzzer, Motors (Forward, Right Turn, Left Turn, Backwards), Ultrasonic Sensor, Line Follower Sensor, Light Detector Sensor.
- The students will explore the Software Development Life Cycle and learn about brainstorming, project planning, and the importance of reuse in technology development.

Grading Criteria:

The quarterly grade will be awarded for all student work based on the following criteria:

- ✓ **Class participation and Seatwork** - 3/10 of quarterly grade
- ✓ **Major Projects, Quizzes, and Tests**- 3/10 of quarterly grade
- ✓ **Quarterly Exams**- 3/10 of quarterly grade
- ✓ **Depoartment** - 1/10 of quarterly grade

Student Materials Required:

- The students will need to bring a flash drive (USB drive) to save their works

Laboratory Expectations:

1. Be on time to class; be seated **before** the bell rings.
2. Wear your uniform neatly.
3. Use English at all times.
4. Come prepared with books, assignments, and supplies and without gum, food, or drink (a sealable water bottle is okay).
5. Be respectful of others (especially when speaking), and of school property.
6. Do your best and participate.
7. Ask permission before leaving the class; take a hall pass.
8. Wait for the bell to ring before you leave class.

Seatwork rules

1. The students may NOT copy from classmates
2. The students are allowed to help each other verbally.
3. The students are NOT allowed to do the work, partially or entirely, for other students. Specifically, they are not allowed to touch the keyboard and mouse of other students' computers.

Discipline:

1. Verbal warning, second reminder (if needed)



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2. Write-Up and then refer to the Discipline Office.
 3. Parent-Teacher conference.



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WEEKLY SCHEDULE

First Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 Aug 10 - 14	Monday Class Preparation ~ Student Holiday Tuesday Morning Assembly Friday Opening Mass & Assumption of Our Lady 8:00 • Course Introduction • Seat Plan • Netiquettes
Week 2 Aug 17 - 21	• Enhancing Make Block Game
Week 3 Aug 24 - 28	• Presentation of make Block Games
Week 4 Aug 31 - Sep 4	• Collecting Information – Making Complex Calculations
Week 5 Sep 7 - 11	• Collecting Information – Advanced Charts
Week 6 Sep 14 - 18	• Quarterly Exams - Robot Designing I
Week 7 Sep 21 - 25	T-W-Th Pre-Exam Days Friday Moon Festival ~ Public Holiday
Week 8 Sep 28 - Oct 2	Monday Confucius' Birthday ~ Public Holiday Thursday Major Exams Day 1 Friday Major Exams Day 2
Week 9 Oct 5 - 9	Monday Record Day ~ Student Holiday T-W-Th Teachers Conference ~ Student Holiday Friday Double 10 Day ~ Public Holiday



Second Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (10) Oct 12 - 16	Line Follower Programming
Week 2 (11) Oct 19 - 23	Line Follower Programming II
Week 3 (12) Oct 26 - 30	Monday Retrocession Day ~ Public Holiday Python Programming Basics
Week 4 (13) Nov 2 - 6	Python Programming Basics
Week 5 (14) Nov 9 - 13	Python Programming Basics
Week 6 (15) Nov 16 - 20	Ultrasonic Sensor Programming I
Week 7 (16) Nov 23 - 27	T-W-Th Pre-Exam Days Friday Grade 12 Exams Ultrasonic Sensor Programming II
Week 8 (17) Nov 30 - Dec 4	Monday Grade 12 Exams Second Quarter Exams - Programming
Week 9 (18) Dec 7 - Dec 11	Monday TBD Tuesday Foundation Day Mass 9:00, Cutting of the Cake Ceremony, Christmas Fair, (Whole day) Wednesday TBD Thursday Major Final Exams half day Friday Major Final Exams half day
<i>Dec 14 to Jan 1 Christmas Break</i>	



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Third Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (19) Jan 4 - Jan 8	Monday Record Day ~ Student Holiday Friday New Year Mass at 8:00 Communication Programming I
Week 2 (20) Jan 11 - Jan 15	Communication Programming I
Week 3 (21) Jan 18 - Jan 22	Designing a Document – Tabs, Columns, Headers, and Footers
Week 4 (22) Jan 25 - Jan 29	Designing a Document – HTML, PDF, and Mail Merge
Week 5 (23) Feb 1 - Feb 5	Thursday Little New Year's Eve ~ Public Holiday Friday Lunar New Year ~ Public Holiday
<i>February 8 to 12 Chinese New Year Holiday</i>	
Week 6 (24) Feb 15 - Feb 19	Multimedia Presentation I
Week 7 (25) Feb 22 - Feb 26	22-26 IOWA Assessments Multimedia Presentation II
Week 8 (26) Mar 1 - Mar 5	Monday Memorial Day ~ Public Holiday T-W-Th Pre-Exam Days
Week 9 (27) Mar 8 - Mar 12	Communicating Online I
Week 10 (28) Mar 15 - Mar 19	Third Quarter Exams
Week 11 (29) Mar 22 - Mar 26	Tuesday Major Final Exams half day Wednesday Major Final Exams half day Thurs - Fri Easter Break (Spring Break) ~ Public Holiday
<i>March 25 to April 2 Easter & Spring Break</i>	



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Fourth Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (30) Apr 5 - Apr 9	Monday Tomb Sweeping Day ~ Public Holiday Tuesday Children's Day ~ Public Holiday Image gathering and uploading to Canva
Week 2 (31) Apr 12 - Apr 16	Yearbook page Construction
Week 3 (32) Apr 19 - Apr 23	19 - 23 AP Mock Exams Yearbook page Construction
Week 4 (33) Apr 26 - Apr 30	T-W-Th Pre-Exam Days Friday Labor Day ~ Public Holiday
Week 5 (34) May 3 - May 7	3 - 7 Final Exams (K, Gr. 5, 8, & 12 Only) 3 - 14 AP Exams Fourth Quarter Exams
Week 6 (35) May 10 - May 14	3 - 14 AP Exams Wednesday Major Final Exams Undergraduates half day Thursday Major Final Exams Undergraduates half day Friday Record Day ~ Student Holiday
Week 7 (36) May 17 - May 21	Monday Gr. 12 Recollection (Morning) Monday Baccalaureate Mass (Afternoon, Schoolwide) Wednesday House Sports Day Thursday High School Field Trip Friday House Culminating Activity All Week Student Clearance Days & Special Events
Week 8 (37) May 24 - May 28	Monday Middle & High School Sports Day Monday LS Field Trip Tuesday Kindergarten Graduation/Gr. 5 Promotion Wednesday Gr. 8 Graduation and Gr. 12 Graduation Thursday Pre-Kindergarten & Gr. 1 - 4, 6 & 7, 9-11 Recognition Friday Last Day of School for Students