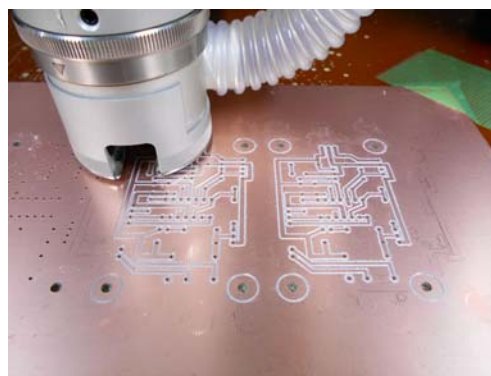
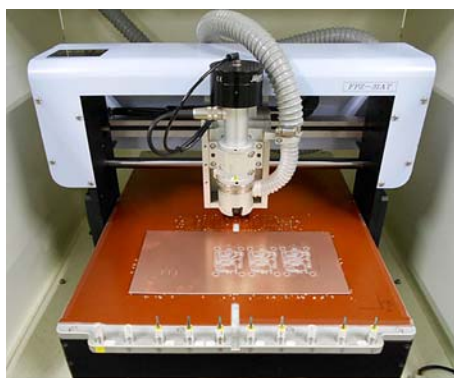


## Printed Wiring Board Production Course

Advanced technology office  
ISEE Engineering Division

### 1. Outline

Ability to produce a printed wiring board (PWB) is strongly demanded in manufacturing electronic devices in general. The ability can be significantly improved by learning how to use a PWB milling machine. It can produce various wiring patterns on a board, and is a powerful tool to easily prototype a small-scale circuit, produce a circuit board that has surface-mounted integration circuits and so on. In this course, you will make an operational amplifier of your own manufacturing, focusing on learning how to design a wiring pattern and how to operate a PWB milling machine.



**PWB milling machine**

### 2. Course details

Date: (Day-1) June 12th, (Day-2) one day chosen from 13th -15th and (Day-3) June 18th  
Quota: 6 persons; every 2 or 3 persons will form a group and choose the date for Day-2.

Place: Institute for Space-Earth Environmental Research (ISEE) Bldg.

<http://www.nagoya-u.ac.jp/access-map/> [F3 ③]

Remarks: Just bring your writing instruments and a PC described below. Teaching/  
training material and tools will be prepared for you.

Day-1: on Tuesday, June 12th, at ISEE Bldg., Room 209.

[10:00 – 12:00] Lectures for PWB basics, PWB milling workflow and explanation on the circuit to be manufactured.

[13:30 – 16:30] Instructions on usage of the “PCBE” software and its remarks and the wiring pattern design using the “PCBE”.

In the afternoon session, a free software “PCBE” (\*1) will be used. Please prepare a laptop PC (\*2), have the “PCBE” installed and bring it to the course.

(\*1) The “PCBE” is a software for wiring pattern designing produced by Mr. Takashi Takatoya and is available from the following URL for free.

<http://www.vector.co.jp/soft/winnt/business/se056371.html>

(\*2) Recommended environment is Windows PC.

Day-2: one group for a day of June 13th – 15th at ISEE Bldg., Room 101 (workshop)

[9:00 – 12:00] Wiring pattern milling using the PWB milling machine.

[13:30 – 16:30] Soldering, assembling and operation check.

Day-3: Examination, [ 10:30 - 12:00 ] on Monday, June 18th at ISEE Bldg., Room 209.

### 3. Registration

Send an e-mail to the contact address shown below with the following information.

- Subject: "Registration for PWB production"
  - Description: name, department, research group, year and e-mail address
- The deadline is Tuesday, June 5.

Contact address:

Tetsuya Kawabata  
ISEE Engineering Division  
Tel: 052-747-6487 (ext. 6487)

E-mail: kawabata.tetsuya@nagoya-u.jp